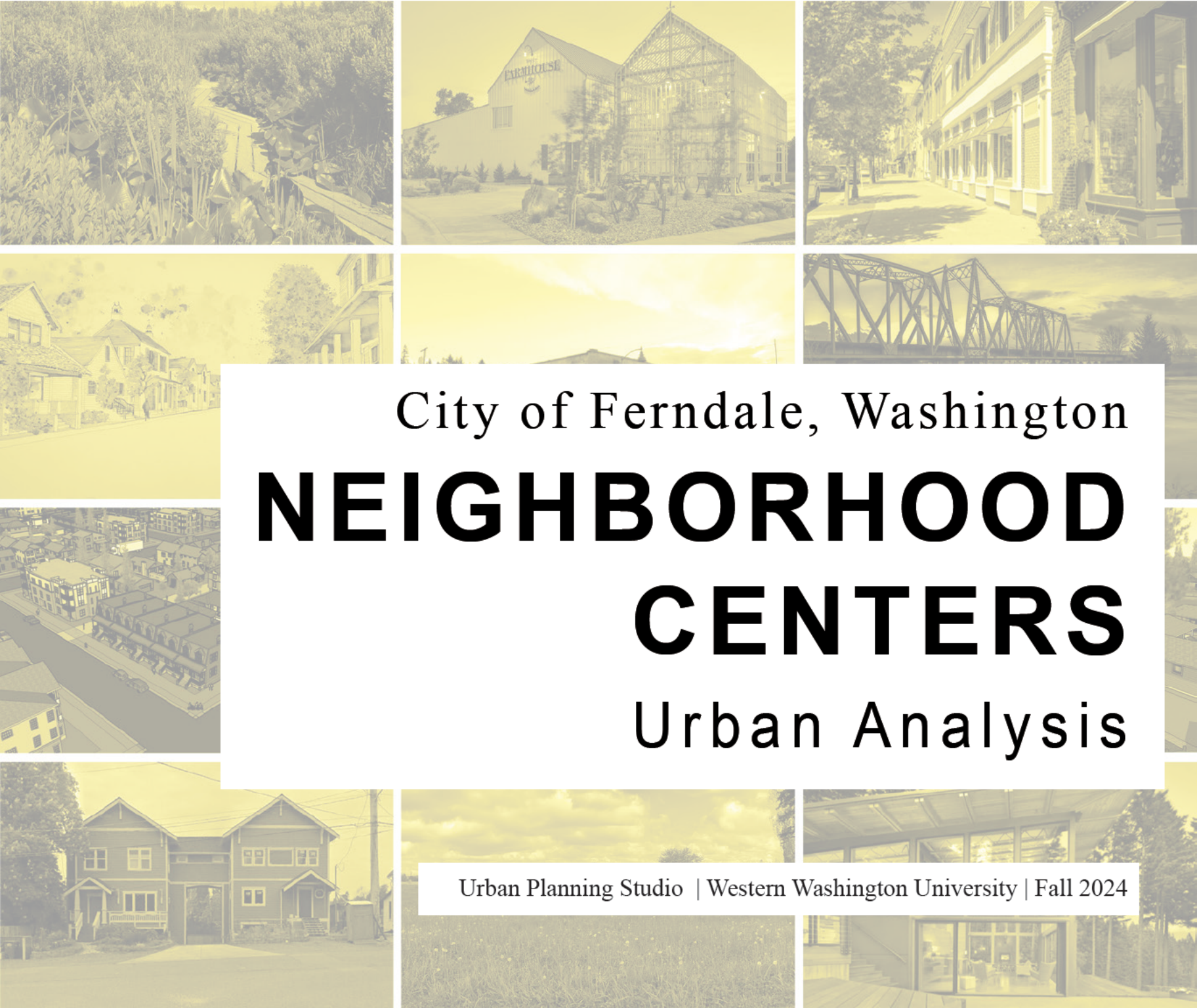

City of Ferndale, Washington

NEIGHBORHOOD CENTERS

Urban Analysis

Urban Planning Studio | Western Washington University | Fall 2024

A WWU Urban Transitions
Studio Publication

Ferndale Neighborhood Centers

URBAN ANALYSIS

City of Ferndale

Whatcom County, WA

College of the Environment
Western Washington University
Bellingham, Washington 98225 USA
Fall 2024

A downloadable PDF file of this report is available at
https://cenv.wwu.edu/uepp/planning-studio-publications

Table of Contents

1.0 Acknowledgements & Dedications

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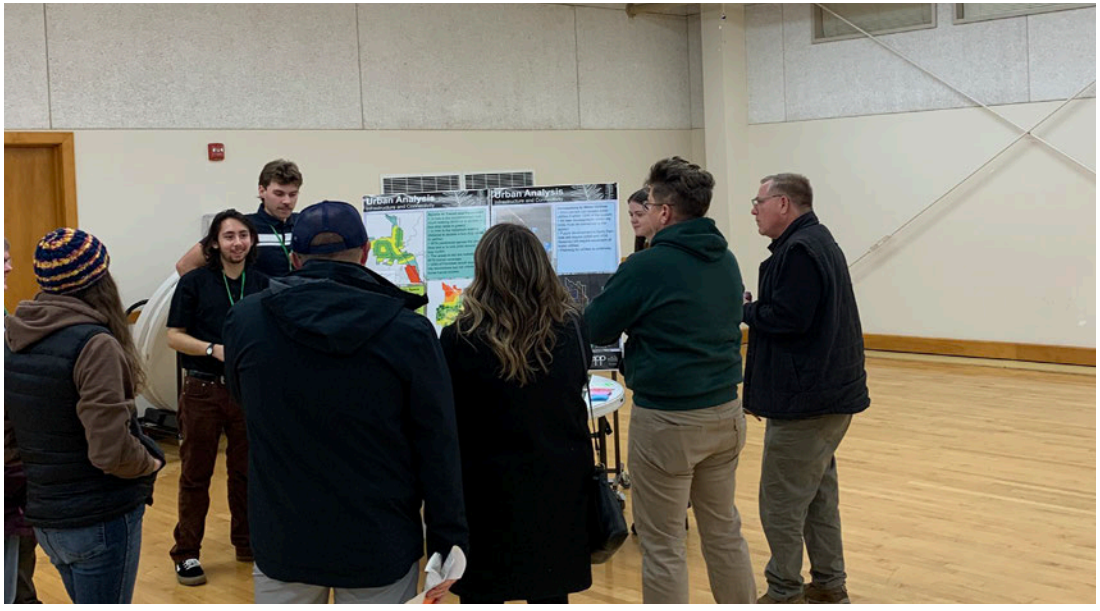

Western Washington University's Urban Planning Studio would like thank Mayor Greg Hansen for welcoming our city-university partnership to examine alternatives to Ferndale's future development to sustainably meet its projected future population growth requirements.

We especially wish to thank Michael Cerbone, Planning Director, and Kyla Boswell, Assistant Planner, for their support of our year-long investigation and for providing insights and resources throughout the study. Our gratitude is expressed to the community of Ferndale for welcoming us and providing invaluable insights to the community's preferences regarding how Ferndale might grow to accommodate its future population while improving conditions for existing residents.

2.0 Executive Summary

Ferndale, Washington is preparing for significant growth, with projections indicating a 65% population increase over the next 20 years. This planning analysis examines key urban systems to inform the city's comprehensive plan update, addressing how Ferndale can accommodate an additional 10,961 residents and 3,337 jobs while enhancing quality of life for all community members.

Ferndale's current population of approximately 16,000 is expected to nearly double, requiring thoughtful planning across multiple dimensions. Current zoning creates rigidity that doesn't align with residents' desires for more accessible commercial spaces within neighborhoods. Analysis reveals significant potential for residential infill development due to la ge lot sizes paired with small building footprints, which could help meet housing needs while creating more complete neighborhoods.

KEY FINDINGS BY SECTOR

Land Use and Housing

Existing zoning doesn't match community preferences for mixed-use, walkable neighborhoods. Residential zones have capacity for infill development that could accommodate housing needs while improving neighborhood completeness.

Economic Development

Ferndale's economy remains heavily dependent on industrial sectors with limited opportunities for local businesses. Residents desire a more vibrant downtown and diversified commercial areas. Programs like EAGLE Development and the Ferndale Catalyst Program show promise for supporting local business growth.

Infrastructure and Transportation

Current transportation systems and utilities face challenges that will intensify with population growth. Improved connectivity, sustainable infrastructure development, and addressing existing vulnerabilities are essential to maintain Ferndale's character while accommodating growth.

Social Equity

While Ferndale's diversity (25% non-White population) is a strength, significant inequities exist. Hispanic and Latino communities, the second-largest ethnic group, are concentrated in areas underserved by public transportation, grocery stores, and healthcare. Income, homeownership, and educational disparities compound these challenges.

Environment

Flooding from the Nooksack River presents the most significant environmental risk to the community, potentially causing property damage and isolating residents from essential services. Climate change is expected to worsen these impacts, requiring enhanced mitigation strategies.

RECOMMENDATIONS

Land Use Reform: Update zoning to allow mixed-use development in residential areas, enabling neighborhood-scale commercial services that reduce travel needs. Economic Diversification: Expand development-friendly policies like the EAGLE and Catalyst programs, develop a mixed-use corridor along Portal Way connected to downtown, and create a cohesive visual identity for commercial zones.

Infrastructure Improvements: Enhance sidewalks, bike lanes, and public transit options, particularly in underserved areas, to improve mobility and safety.

Equity and Inclusion: Engage underrepresented populations through culturally competent outreach, provide multilingual resources, and ensure equitable distribution of community services.

Environmental Resilience: Strengthen flood mitigation strategies in response to climate change, expand parks and green spaces, and evaluate the city's relationship with nearby industrial facilities.

This analysis represents the first phase of a three part planning process conducted by Western Washington University's Urban Planning Studio in collaboration with the City of Ferndale. Implementing these recommendations will help Ferndale accommodate growth while creating a more equitable, vibrant, and sustainable community for all residents.

3.0 Methods

1. Literature review
The literature review identifies and summarizes materials pertinent to a comprehensive analysis of the city of Ferndale. We attempt to identify relevant city regulations, plans, census data, and other relevant documents pertinent to infrastructure and connectivity. We also look at case studies relevant to Ferndale and Whatcom County as resources and insights to move forward with this project. Below is the structure in which we address each component of the literature review.

Reports, Documents and Policies
Reports, documents, and policies are relevant to infrastructure and connectivity and infrastructure. These will help identify the existing conditions of Ferndale and the current trajectory the city will require soon. Additional analysis can determine which media is helpful or hindering the city.

Code Review
County and municipal code review is necessary to determine what rules the city and county currently utilize. It sets the field for how the city has been created and continues to develop.

Available Data
Quantitative and qualitative data pertaining to infrastructure and connectivity. Includes maps and census data.

Case Studies
Case studies show examples of development from different communities that share similarities in Ferndale. Includes regional and national case studies that may provide relevant policy lessons.

2. Urban Analysis
Student teams conducted an existing conditions urban analysis of Ferndale, looking at current land use, housing, economics, infastructure, social connections, and environmental conditions.

3. Public Engagement
Student teams hosted a community event to kick-off the city/university partnership and engage with Ferndale residents. Students gathered qualitative and quantitative information from the community to inform their urban analysis and design concepts.

3.1 Land Use

The urban analysis offers a comprehensive examination of Ferndale through a land use lens, delving into the intricate connections between land use and urban development. The document addresses several key aspects of analysis:

Examination of Interrelationships: An analysis of how zoning/development regulations, code, and current land use affects and is affected by different aspects of planning, such as the environment, housing, the economy, and connectivity.

Historic Land use Over Time: An examination of how Ferndale's land use has changed and grown over time, identifying trends and contextualizing the city in its history.

Current Land Use Status: An examination of current land use through Land Based Classification Standards (LBCS) and an Urban transect of Ferndales current built environment, highlighting inconsistencies with current zoning and regulations.

Projections and Future Buildable Areas: Future growth forecasts, including housing and employment needs, are considered in relation to Ferndales Buildable Lands Map in order to determine the feasibility of the cities projected population growth and environmental constraints.

EXAMINATION OF INTERRATIONSHIPS

Ferndale's land use has several direct impacts on other areas of urban development. It's important to identify these relationships to inform our response to existing uses, codes, and policies.. Identifying the land capacity, in particular, for housing and economic needs, will be crucial to Ferndale's expected population increase.

Housing + Built Environment: Given the anticipated need for housing units, and potentially increased density, land use restrictions on residential density as well as access to services will be relevant.

Economy: Currently there is a desire for increased services, throughout Ferndale rather than just in concentrated areas. Particularly in areas like downtown, there is ample room for densification to further satisfy needs for diverse economic activities to engage in.

Environment: Critical areas, wetlands, and floodplains minimize developable areas of land either from a feasibility or economic standpoint, affecting land use decisions in these areas.

This is a preliminary introduction, and these interrelationships are explored further throughout the report.

HISTORIC LAND USE OVER TIME

The land on which the city we know as Ferndale sits has been inhabited and used by humans, namely Indigenous members of the Lummi, Nooksack, and Semiahmoo Nations, for thousands of years, and there was once a massive and ancient logjam on the Tiytásem (Nooksack) that made fishing easy and plentiful, making it a nexus for the southern based Lummi and northern based Nooksack. Occupied at least seasonally since 300 BCE, the Indigenous history of this place is long and storied, making the value of the land more than just what its zoned use makes its market value. Instead, there are hundreds of different values instilled into the land through experience. This is an important thing to remember when we consider how land should be used today. Multiple Indigenous sites exist in the area, most notably a Lummi settlement on the east side of the river, which was occupied until at least 1857, when raids, disease, and treaties forced most Indigenous members onto reservations. By 1864, less than 1000 indigenous people existed in the area (Moles, 2014).

This evacuation was conveniently (for the settler) during the same period when pioneers began to arrive from Bellingham Bay, which had recently experienced some losses with their lumber mill burning down (1873) and several mines in Sehome being closed (1877). These colonizers began to leave Bellingham (which went from 3000 people to less than 100) with some deciding to settle on the southern side of Ferndale near the Nooksack. Disenchanted with prospecting for coal and gold (which had recently been discovered on the Fraser), the colonizers recognized the agricultural value of the Ferndale area, making food production the primary land use in the area for a majority of its history. Settlers used the very same fields that Indigenous people had used to cultivate camas and wild carrots, but introduced invasive non native flora and fauna to the area, changing the lands character up to today. The ancient logjam was cleared to improve flow of capital and people (making the Nooksack steamboat accessible), and the sett ler population in Ferndale exploded, eventually being incorporated in 1907.

By 1882, Ferndale was concentrated on the east side of the Nooksack River and was the third largest town in Whatcom County but due to a personal rivalry and the establishment of a post office on the west side, development began to favor the West Side by the 1890s, which is when the railroad arrived, the first bridges were built across the Nooksack, and the logging, produce, and dairy industries expanded (Moles, 2014). At this time Ferndale's Commercial Core and oldest housing stock was developed, and the urban form we now know as Ferndale began to form. Rail and ferries remained the primary modes of access, with up to 5 passenger trains going north and south everyday until 1956, when the Federal Highway Act was passed and I-5 was begun (Lancaster, 2009). It was at this point that Ferndale began to really take off in population and total area, with several large annexations occurring midcentury and sprawling residential subdivisions bec ame the primary new land use, filling up what used to be agricultural fields. This evolving urban form in Ferndale since 1943 is shown in Figure 1.

CURRENT LAND USE STATUS

This section examines actual current land use through an Urban Transect and a Land Based Classification Standards (LBCS) Map of Ferndales current built environment. As seen below prescriptions such as zoning, code, and regulations from the literature review are not consistent with the actual character of Ferndale, indicating a level of informality in its urban form (Figure 2).

The majority of respondents were most comfortable with T2 Rural Zones, and T3 Suburban Zones, closely followed by T4 General Urban Zones (Table 1). The zones on this density preference survey had examples of that density level in Ferndale. All density levels shown on the survey, are preexisting in the City.. It is apparent that there is a level of preference on either end toward extremely low or relatively higher density. The middling opinion is a low to medium density preference, which doesn't include examples of multi-family housing.

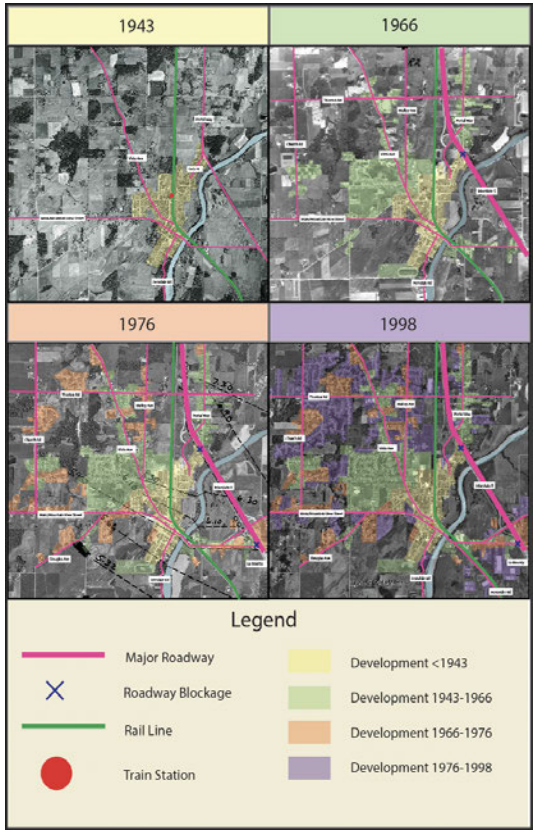

Figure 1: Historic Land Use Over Time (1943-1998)

This is something that we will need to confront as a studio when trying to address the housing need that is present in Ferndale, with the increasing population. A lot of people worry about reduced privacy, and increased crime as it relates to density, so this density preference may be more the result of a fear of a change in lifestyle, instead of a genuine reality.

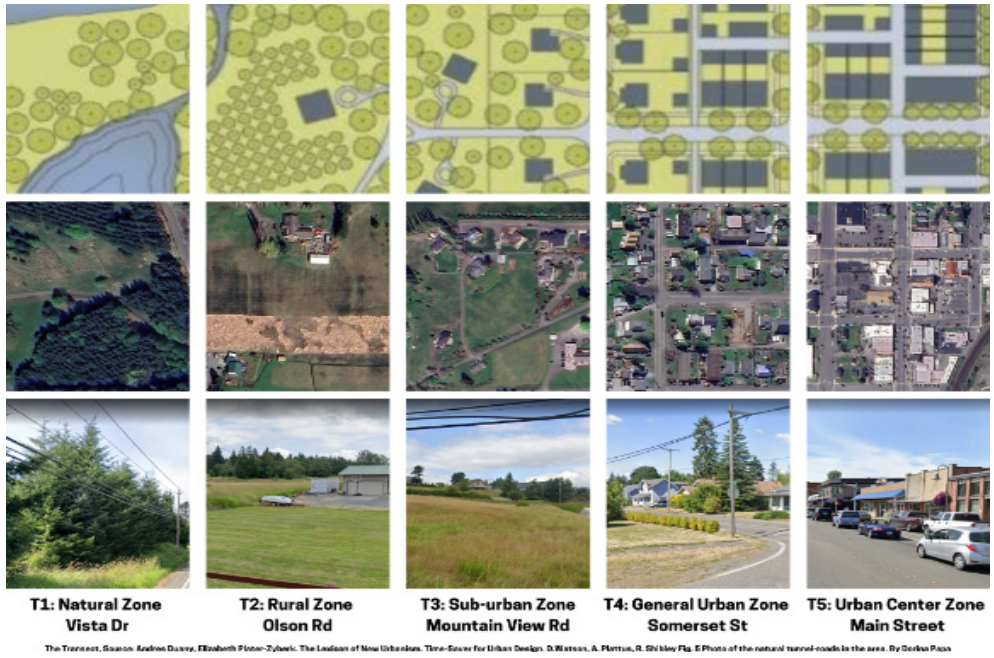

Figure 2. Density Preference Results

Table 1: Respondent Votes for Density Options

Type of Density (Transect)	Number of votes
T1	2
T2	4
T3	4
T4	3
T5	2

LAND BASED CLASSIFICATION STANDARDS

Land Based Classification Standards (LBCS) are a model of mapping land use across five key attributes: Activity, Function, Structure, Site, and Ownership. This process further refines traditional land use mapping methods allowing for more nuanced and detailed information. By analyzing the patterns, distributions, densities, and implications of different classifications for each of the five attributes, several key insights into the urban morphology can be made. For Ferndale, a comprehensive activity map was created, along with analysis of the urban nodes for the other 4 dimensions. LBCS maps are granulated on a parcel level (American Planning Association, 2000).

FERNDALE ACTIVITY ANALYSIS BY ASPECT

Patterns and Clusters

Residential dominates the northwest, expanding south, north, and west ward with newer developments. Commercial zones cluster near interchanges and the city core, while industrial zones align with railroads and highways to the south and far north. Some discrepancies exist where assessor data shows residential activity in areas zoned for industrial or commercial use. This highlights the need for reconciling zoning maps with actual uses to support cohesive planning.

Connections:

- *Housing: Misaligned zoning reduces housing availability in appropriate areas.*
- *Economy: Commercial and industrial activity mismatches disrupt local business potential.*

Land Use Compatibility

Clear separations exist between residential and industrial zones, with natural or undeveloped buffers in some areas. However, in southern neighborhoods, assessor data indicates residential activity near industrial sites, creating conflicts such as noise and pollution. Addressing these conflicts is crucial to improving residential quality of life and ensuring land use aligns with community needs.

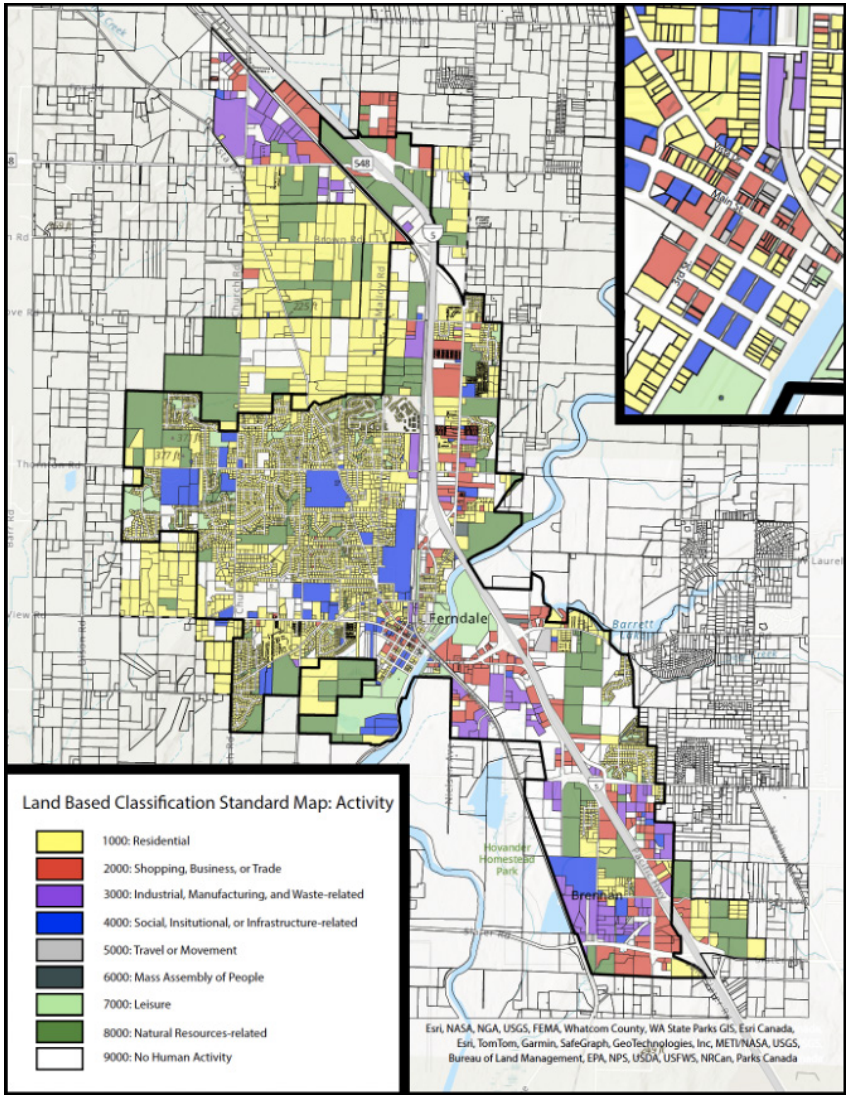

Figure 3. Overview of LBCS Activities in Ferndale

Connections:
- *Housing: Compatibility issues lower residential desirability in affected areas.*
- *Environment: Buffer zones mitigate industrial impacts on ecosystems.*

Access and Connectivity

Barriers like I-5, the Nooksack River, and the BNSF railroad isolates neighborhoods, limiting connectivity. Mismatches between zoning maps and current land uses affect access to parks, schools, and services, particularly in the southern areas. Pedestrian and cycling infrastructure remains underdeveloped. Improving connectivity in underserved areas will enhance equity and align land use with infrastructure priorities.

Connections:
-*Connectivity/Infrastructure: Inconsistent zoning disrupts connectivity between residential and commercial areas.*
- *Social: Uneven access to services perpetuates inequities.*

Scale and Density

High-density areas are located in the city center and in older neighborhoods, while residential zones in the northwest and south remain low-density. Assessor data shows underutilized parcels within commercial zones, indicating development potential. Prioritizing infill and density adjustments in these areas will maximize efficient land use

Connections:
- *Housing: Encouraging infill in underutilized areas could increase housing stock.*
- *Economy: Underused commercial parcels limit economic growth in key areas.*

Potential for Growth

The UGA contains undeveloped areas with potential for residential or commercial growth, though environmental constraints like wetlands limit their usability. Zoning and assessor data inconsistencies near interchanges create uncertainty for development. Aligning growth areas with current infrastructure and environmental constraints within the UGA will ensure more sustainable development.

Connections:

- *Housing: Growth opportunities could address housing shortages but must consider zoning updates.*
- *Environment: Sensitive areas demand ecologically responsible development practices.*

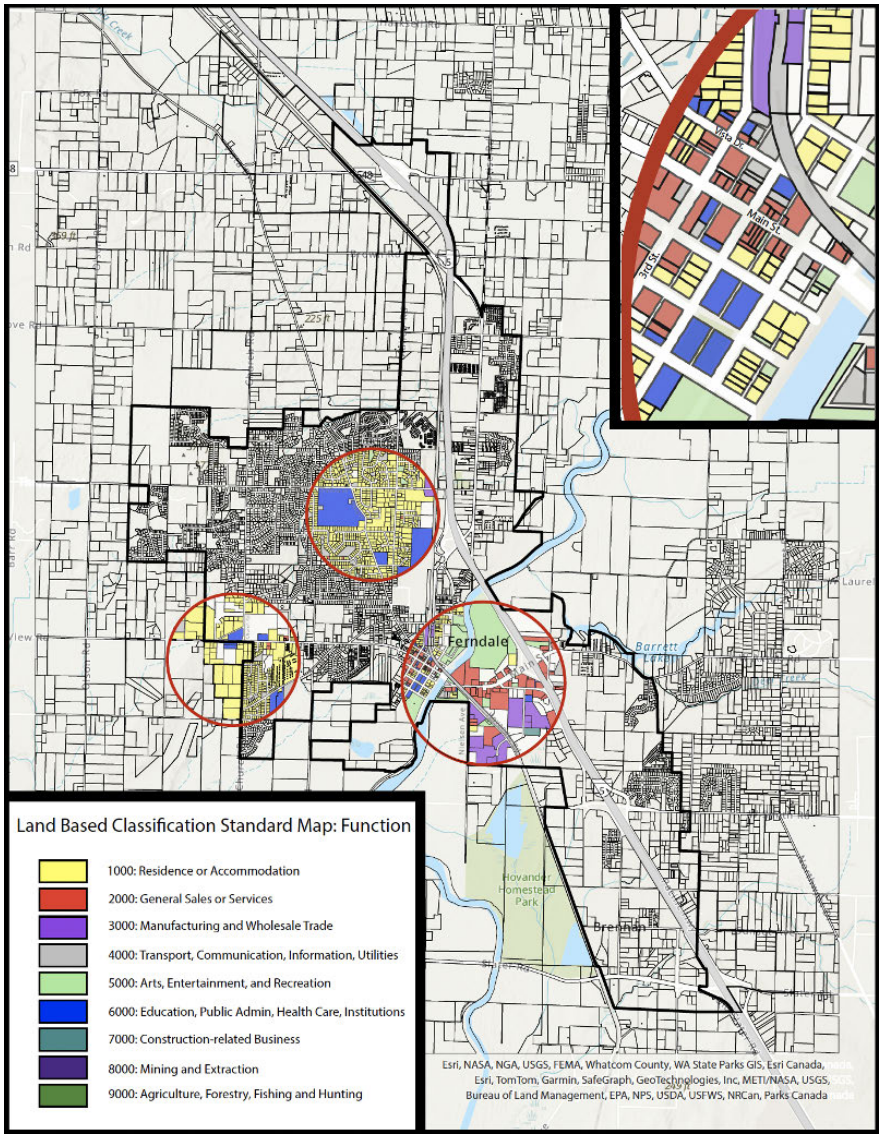

Figure 4. Overview of LBCS Functions in Ferndale

FERNDALE FUNCTION ANALYSI BY NODE

Commercial Core

Functions vary by river side. The west side (historic downtown) includes sales, services, residences, recreation, education, and public administration. The east side features commercial, manufacturing, leisure, and transportation. Incompatible residential functions in industrial zones indicate plans for phasing out. However, such housing is often more affordable, creating a conflict between a fordability and compatibility. Substantial underutilized areas on the east side of the Nooksack offer opportunities for increased density and mixed-use development.

Key Functions:

- *West: Residential, sales, leisure, education, public administration.*
- *East: Commercial, manufacturing, wholesale trade, leisure, transportation.*

Thorton and Vista

Dominated by residential and educational functions, with some recreation, institutional (e.g., churches), and utility retention. Limited

sales and services force residents to leave for basic needs. Recreation and public service functions are insufficient, creating inequities. Inaccessible vacant land east of the railroad hinders development.

Key Functions:

- *Dominant: Residential, education.*
- *Limited: Sales, recreation, institutional (churches).*

Church and Douglas

Functions are concentrated in the southeast, with residential and educational uses. Northern areas include sales, services, institutional (churches, senior living), and large vacant land

facing environmental constraints (wetlands, slopes). UGA areas are low-density residential, offering opportunities for densification. Limited recreation and public services highlight inequities.

Key Functions:

- *Southeast: Residential, education.*
- *North: Sales, services, institutional (churches, senior living).*

STRUCTURES ANALYSIS

Commercial Core

Dominated by commercial and specialized structures, particularly on the east side of the Nooksack. The west side has mixed residential, public assembly, and community structures along

with some vacant parcels. Large parcels on the east side indicate lower structural density. Many structures along Main Street are unoccupied, offering opportunities for adaptive reuse. Accessibility barriers include the river, railroad, and Interstate, while mixed structure types on the west side promote compatibility between jobs and living spaces.

Key Structures:
- Dominant: Commercial, transportation, public assembly.
- Additional: Residential, utility, vacant.
- Potential: Adaptive reuse of unoccupied structures.

Thorton and Vista
Predominantly residential structures with some educational (Skyline Elementary, Ferndale High School), public assembly (church), and utility structures (retention ponds, water tanks). A single commercial structure (rope factory) exists. Subdivisions with dead-end streets reduce accessibility and discourage multimodal transport. Dependence on other nodes for services raises environmental and accessibility concerns. Proximity to the railroad suggests structure types should be carefully considered for density increases.

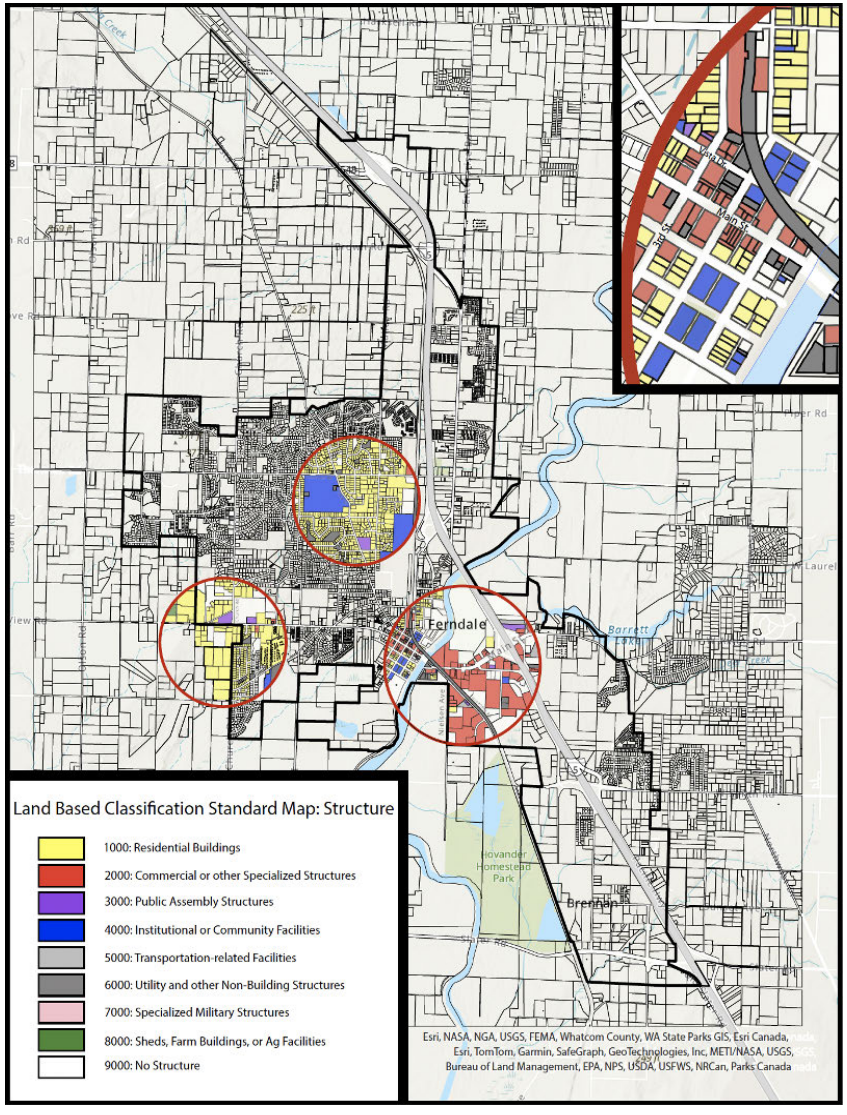

Figure 5. Overview of LBCS Structures in Ferndale

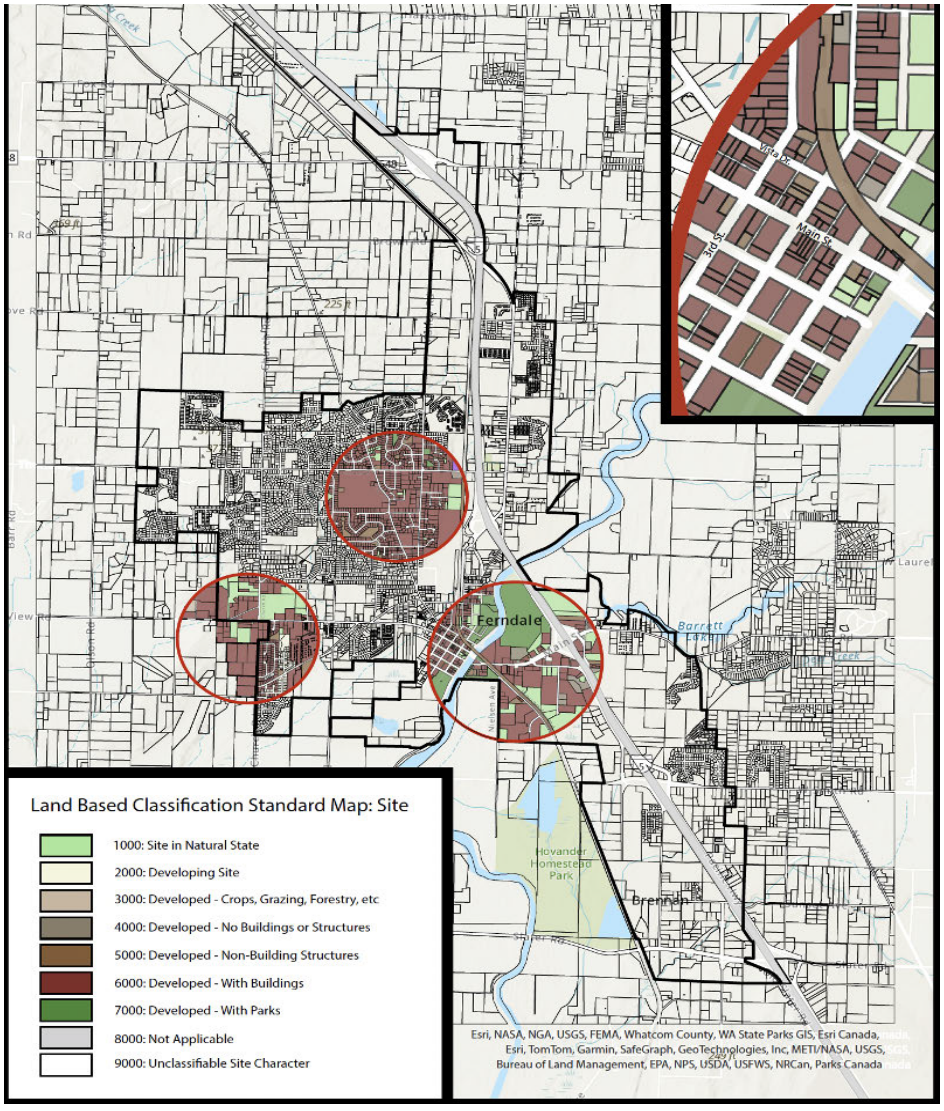

Figure 6. Overview of LBCS Sites in Ferndale

Key Structures:
- Dominant: Residential, educational.
- Additional: Public assembly, utility, non-building, single commercial.

Church and Douglas
Residential structures dominate, with other types concentrated along Mountain View (churches, commercial). Educational and utility structures are scattered among subdivisions. Sparse structures in UGA areas indicate potential for growth, though environmental constraints like wetlands complicate development. Disconnection from central Ferndale forces reliance on motorized transport for basic needs.
Key Structures:
- Dominant: Residential.
- Additional: Churches, commercial, utility, agricultural (active farm).

SITE ANALYSIS BY NODE

Commercial Core
Most sites are developed with buildings, parks, or non-building structures (e.g., parking lots, railroads). On the west side of the Nooksack, sites are highly developed, with parks occupying flood-prone areas. The east side contains undeveloped or partially developed sites along the railroad, La Bounty, and the Interstate interchange. Large cleared sites without buildings suggest prior occupation or preparation for future development. Infill potential is higher on the east side, while density increases on the west would require redevelopment of already occupied sites.

Key Sites:
Infill Sites along La Bounty, Railroad, abandoned lots north of Main, city block on west side of the river south of Main.

Thorton and Vista
Nearly all sites are developed with buildings or non-building structures (e.g., retention ponds). Limited natural sites exist to the north and east. Parks like Oxford and Glacier are developed but largely inaccessible to most residents. The lack of open space compared to Node 1 highlights inequities. Redevelopment or additional construction would significantly increase density due to the already high level of site development.
Key Sites:
Water Storage Site, empty land west of railroad, School sites, Churches.

Church and Douglas
Predominantly residential sites with substantial undeveloped or partially developed land, especially in the northern areas. Developed sites along Mountain View include commercial, church, and utility structures. Parcels in the UGA are sparsely developed, indicating room for growth but facing environmental constraints like wetlands and steep slopes. Conservation may be a better option for many undeveloped parcels. Limited site development character contributes to reliance on other nodes for essential services.
Key Sites:
Senior Living, Manufactured Home park, Churches, empty wetlands, UGA sites

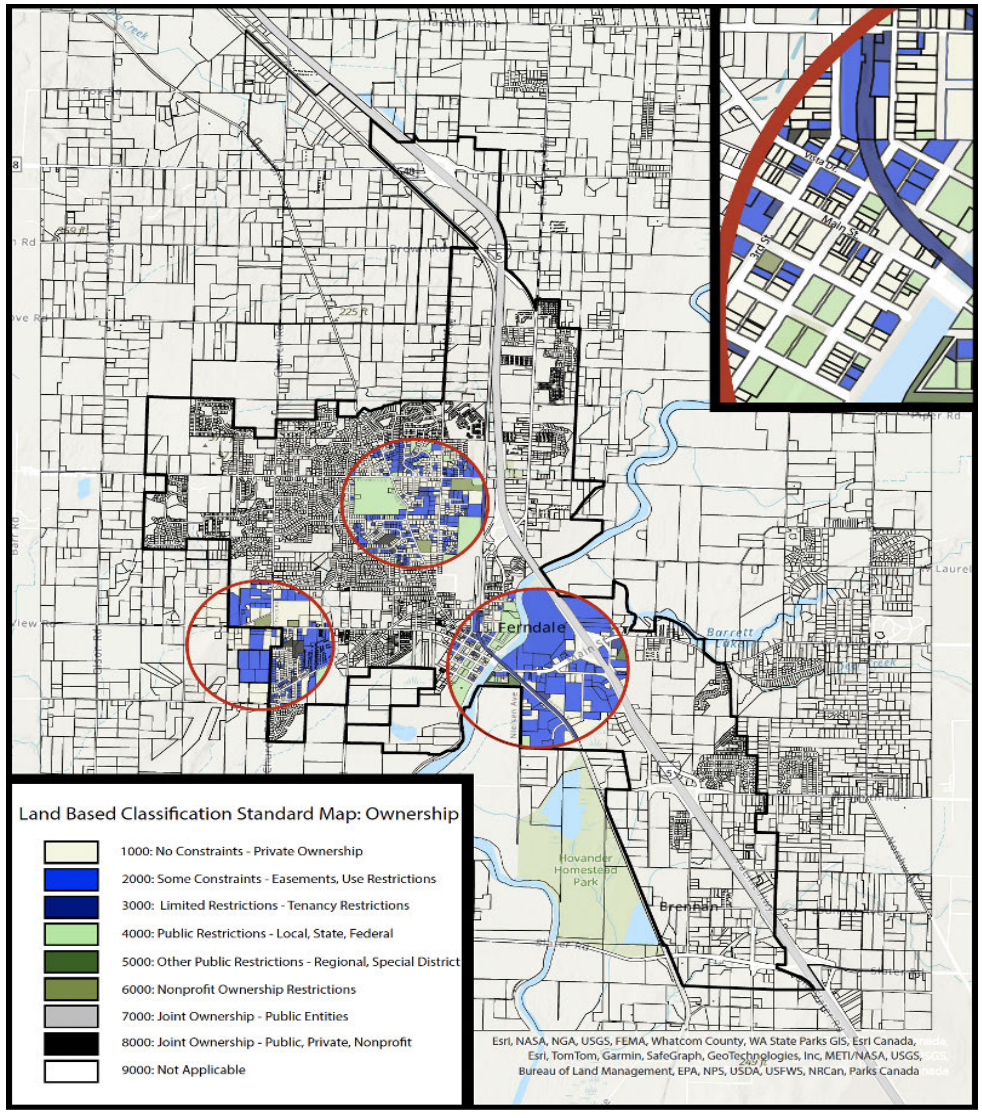

Figure 7: Overview of LBCS Ownership in Ferndale

OWNERSHIP ANALYSIS BY NODE

Commercial Core
Ownership is diverse, with significant public holdings (parks, schools, city hall, utilities) concentrated on the west side of the Nooksack. Private parcels on the east side often include easements, reflecting newer developments with municipal oversight. Large undeveloped private parcels on the east side suggest potential for future development but currently lack public amenities. Public parcels' west-side concentration highlights inequitable access to parks and schools for east-side residents.

Thorton and Vista
Ownership is mostly private, with a balance of fully private parcels and those with easements. Easements are common near utility structures or parcels located behind others requiring access. Public parcels include schools and parks, though parks are less accessible to southern and western parcels. Non-profit ownership includes a la ge land trust parcel to the east and a church parcel to the south.

Church and Douglas
Dominated by private ownership, with public parcels only in the southeastern area used for conservation. Non-profit holdings include churches and a private assisted living facility. Environmental constraints limit northern parcels, though no official easement or conservation requirements exist. Scarcity of public parcels and limited ownership diversity underscore inequities in public resources and infrastructure compared to other nodes.

Limitations:
Substantial data gaps existed in the plat maps that were used to determine easement information used in the creation of the Ownership dimension, as some plat maps in the commercial core were so old that utility easements were not shown and others had no plat map. This was supplemented through the use of Ferndale's GIS Viewer (City of Ferndale, n.d.-a), which had some utility information. Additional limitations include the use of google street view to determine activity, function, and structure information when county assessor data was inaccurate, which while an improvement to the maps of the county, some parcels were likely misclassified due to relative inability to determine its actual characteristics due to site characteristics (trees, hills, etc).

Projections and Future Buildable Areas
Ferndale is projected to increase its population by 10,961 people and add a total of 3,337 jobs in the next 20 years. The city is expected to add 29 jobs in resources, 1,497 jobs in the industrial sector, 313 jobs in retail, and 1,498 jobs in the commercial sector. There are currently 5903.75 acres in economic zones (Light Industrial, Manufacturing, General Business, Regional Retail, and Mixed Use Commercial) in Ferndale. Determining how much additional acreage would be needed for projected job growth is not an exact science. For the purposes of this report Nelson's example of Calculating Residential Acreage Needs to Accommodate Future Employment Projection was used in determining additional acreage needed to support future job projections. Nelon's chart encompasses five different jobs categories; Offices, Retail and Services, Institutional, Industrial, and Mixed Use. Completing the additional acreage analysis required taking creative liberty in matching the four employment sectors the city is planning for to the five listed in Nelson s chart. Resources and Industrial jobs in Ferndale were matched with Industrial in Nelson's chart. Retail and Commercial jobs in Ferndale were matched with Retail and Services in Nelson's chart. Using this chart and the creative liberties taken an additional 16.98 acres would be needed to accommodate the additional jobs Ferndale is projected to get.

Nonresidential Land-Use Category	*% Distribution of New Jobs (Policy-Based)*	*% Distribution of New Jobs (Policy-Based)*	*Jobs in Category*	*Acreage Needed (Jobs / Jobs per Acre)*
Offices	15	10	1,000	66.7
Retail and Service	15	25	2,500	166.7
Institutional	12	10	1,000	66.7
Industrial	10	25	2,500	250
Mixed Use	10	30	3,000	300
Total	—	100	10,000	850.1

Sources: Weitz, 2013, Nelson (2004).

Table 2: Jobs by Land Use Category

3.2 Housing and Built Environment

INFILL POTENTIAL

To fulfill the projected housing needs of Ferndale infill of missing middle housing could be implemented in existing residential zones. By using data provided by the City of Ferndale and collaborating with the Housing Group an analysis of infill potential infill was create showing a sizable amount of land available for potential infill. This analysis does not take into consideration the potential critical areas that may exist on parcels that were analysed. This infill analysis is meant to be a starting point at identifying the potential infill capabilit . When looking at the existing parcels it is clear that there is potential for infill as many of the parcels are quite large with very small building footprints. sewage overflows during floo events. Septic systems also risk failure and the possibility of runoff pollutants critical areas.

HOUSING DEMOGRAPHICS

Ferndale's current population is housed within the 5,996 dwelling units that are located within the city boundaries. The housing type in Ferndale is primarily single-family housing, making up around 2/3 of the current housing stock at 4,076 housing units. The city of Ferndale expects 2884 new housing units to be built by 2036, and Whatcom County has allocated 3055 new units to be completed by 2045.

To begin analyzing important data, we can begin by looking at population characteristics, such as household population and group quarters population. It is important that we make the distinction between household and group populations as it can cause a miscalculation of projected housing needs. In a city like Ferndale with a small group quarters population in relation to the total, it is not as significant as a city that may contain a military base or college, but in the case of Ferndale it is still important to consider. Through this analysis we have already stated the current Ferndale population to be 15,992 (U.S. Census Bureau). In the Ferndale Comprehensive Plan, they state that the group quarters population to be a total of 60 individuals (City), from the two assisted living facilities within the city.

Total Households and Total Housing Units

In this first subsection of Housing Demographics, we will establish the total households and housing units that exist within Ferndale, Washington. Tables and graphs show the total housing units in Ferndale, of that total the amounts that are occupied and vacant. This data comes from the United States Census Bureau in 2020. Ferndale's population is housed within about 5,979 units, with about 96% of those units being occupied. While there are 209 vacant household units, this does not necessarily mean that the units are available to renters. Within Ferndale there is a very low number of units vacant in relation to the current housing stock and population.

Occupancy Status in Ferndale	# of Units
Total Housing Units	5979
Total Occupied	5770
Total Vacant	209

Table 3: Housing Unit Occupation

Housing Size	# of Households
1-person Household	1185
2-person Household	1935
3-person Household	950
4-person Household	933
5-person Household	441
6-person Household	204
<=7-person Household	122

Table 4: Number of Households by Size

Household size, age and type
From the American Community Survey table, "Selected Social Characteristics in the United States", the data states that in Ferndale the average household size is 2.92 people per household. In the Ferndale Comprehensive Plan, Housing Chapter they state, "The City has been remarkably consistent in terms of household populations, maintaining an average population of between 2.49 and 2.78 persons per household since 1980 (City)."

From collecting data, we noted there were some significant ma gins of error for some sections of the analysis, this being one. Overall, the data is still relatively close enough that it still provides insight to housing in Ferndale. Table 4 shows household size per person and the that household size occurs. This table does not differentiate between owner and renter occupied.

Evaluating household age within a city can be beneficial for getting an idea for the overall

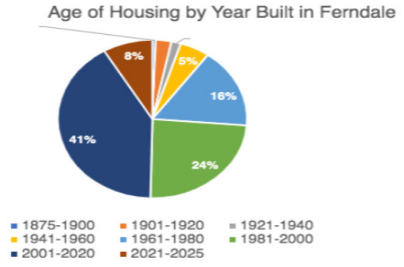

Figure 8: Age of Housing by Year Built in Ferndale

condition of the housing stock. Ferndale does not have very historic housing; Ferndale housing stock is relatively new. The pie chart depicts the age of housing in Ferndale by utilizing year structures-built data from the Whatcom County Tax Parcel Viewer. This data indicates that about 73% of the housing in Ferndale was built within the last 40 years.

Ferndale, Washington mainly consists of single-family housing, with some multi-family and mobile home housing stock. Table 5 displays housing data from Whatcom County Tax Parcel Viewer. Around 73% of the housing stock in Ferndale is single-family dwellings.

Ferndale has a high occupancy rate and a very low vacancy rate with 1.6% of vacant units being rentable. It is generally known that a city should try to maintain a 5-8% vacancy rate to have an equitable and accessible housing market. Ferndale's housing market is currently not very accessible. It will be important for Ferndale's growth to invest in middle housing forms that can aid in housing equity and diversity,

Housing Type	# of Households
Single Family	4466
Duplex, Triplex or Fourplex	124
Multi-plex (Apartment Complex)	997
Mobile Home	177
Other	319

Table 5: Number of Households by Type

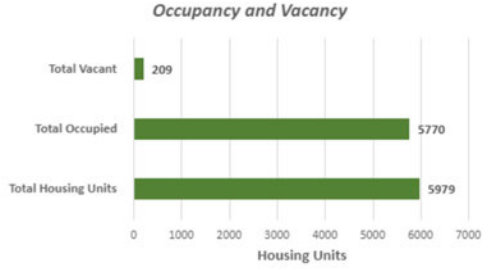

Figure 9: Occupancy & Vacancy

promoting densification and not sprawl. The data shown in this section is 2020 U.S. Census Data pulled from NHGIS

Housing Tenure
Analyzing housing tenure is essential for accurately predicting future housing needs and for removing potential biases about traditional assumptions about tenure associated with housing type (i.e. single family are only owner-occupied, apartments are always renter-occupied). These figures represent all housing

units and do not distinguish between different housing types. Analyzing tenure data reveals a higher number of owner-occupied units than renter-occupied, which aligns with the prevalence of single-family housing in Ferndale.

Physical Condition of Housing Units

From the Ferndale Comprehensive Plan, Housing Chapter, it states, "For the most part, the housing stock in Ferndale is in good condition. The City has very little concentration of substandard housing, which is typically found in older urban areas. However, houses in poor condition do exist in isolated areas within the City. (City)".

Tenure	# of Units
Total Occupied Housing Units	5770
Owned w/ Mortgage or Loan	2815
Owned free & clear	1125
Renter Occupied	1830

Table 6: Number of Units by Ownership

The housing that may some more physical issues than others is some of the older housing stock. To further gage the physical condition of housing in Ferndale we can look at how many houses have heating. Table 6, from the 2022 American Community Survey table titled, "Physical Housing Characteristics for Occupied Housing Units." shows that very few homes do not have heating. Overall, it can be gathered that generally Ferndale housing stock is in fairly good condition.

Cost and Value of Housing/Housing Affordability

House Heating Fuel	# of Households
Utility gas	3,038
Bottled, tank, or LP gas	60
Electricity	2,042
Fuel oil, kerosene, etc.	0
Coal or coke	0
All other fuels	28
No fuel used	11

Table 7: Number of Households by Heating Fuel

According to the American Community Survey in 2022 the median house value in Ferndale, Washington is 429,000. Also from ACS, the median household income (2022 dollars) in Ferndale is 82,466. Furthermore, from ACS the median monthly housing costs (dollars) is 1,522, this is not differentiated between mortgage and rental costs. The Housing Chapter of the Ferndale Comprehensive Plan has a graph that depicts housing affordability in comparison to the US and Washington State. As a municipality

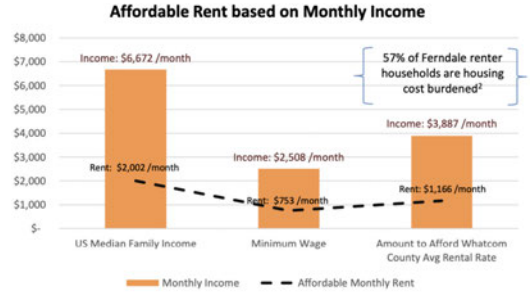

Figure 10: AffordableRent based on Monthly Income

within Whatcom County, Ferndale has been allocated specific quantities of housing for various income groups. This is to increase the affordability of housing in the city and county overall. Between now and 2045, the city of Ferndale has been allocated 3055 additional housing units for their growing population based on the median income of Ferndale residents.

Housing Allocation Based on percentage of median income ($82,866) for Ferndale by 2045

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allocated specific quantities of housing for various income groups. This is to increase the affordability of housing in the city and county overall. Between now and 2045, the city of Ferndale has been allocated 3055 additional housing units for their growing population based on the median income of Ferndale residents.

Income Level	Total Units	Non-PSH	PSH	30-50%	50-80%	80-100%	100-120%	>120%	Emergency Units
Housing Stock (2023)	5,980	203	0	568	1,385	915	649	2,216	0
2045 Additional units	3,055	785	317	659	210	148	216	719	51
Total By 2024	9,035	988	317	1,227	1,595	1,063	865	2,935	51

Table 8: Total Units by Affordability Type

within Whatcom County, Ferndale has been allocated specific quantities of housing for various income groups. This is to increase the affordability of housing in the city and county overall. Between now and 2045, the city of Ferndale has been allocated 3055 additional housing units for their growing population based on the median income of Ferndale residents.

Infill Potential, Critical Area Considerations, Water and Sewer Service

Calculating the potential for infill development is a valuable tool for understanding where development can best fit in the existing built environment. Infill potential is calculated by comparing the square footage of the parcel of land to the square footage of building footprints on the property. Orange and red parcels represent a low or zero potential for infill, while yellow

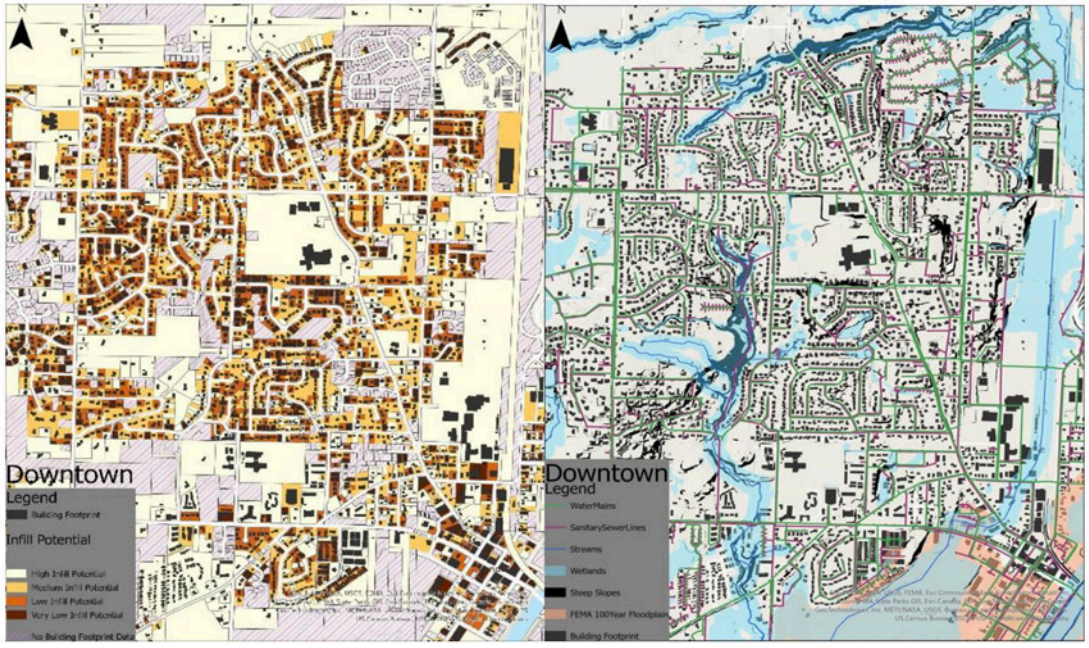


Figure 11: Infill Potential: Downtown Ferndale

represents potential for some accessory infill. Beige represents high infill potential, and these are the regions looked at for new development.

Furthermore, we demonstrated critical area considerations that must be remembered in relation to areas with high infill potential. Additionally, in the critical areas map are waterlines (green line) and sewer lines (purple lines). Streams and their respective wetland buffers are blue, the FEMA flood plain is a salmon colo , and areas with steep slopes are black. Please see the environmental group's report for additional information about critical areas.

Downtown Ferndale is fairly limited in terms of infill potential, but that does not mean that it does not exist. There are several parcels that have opportunities for additional development. There may be opportunities for decreasing setback and FAR requirements for infill in the downtown core. This is where promoting and incentivizing Acessory Dwelling Units may be more applicable, gently increasing density, and maintaining the downtown character.

It is important to consider the proximity of critical areas, such as floodplains and steep slopes,

in the downtown area and the single-family developments to the northwest. Many of these developments, as well as parts of the downtown area, are built adjacent to or even directly on these sensitive areas. Understanding these conditions is essential when evaluating the potential for high-density infill or greenfield developmen elsewhere. Additionally, it is worth noting that the entire downtown area is already connected to water and sewer systems, which makes it an especially attractive location for further development, versus some of the other located nodes that do not have this infrastructure.

North Ferndale offers the largest amount of open and developable space in the city, providing strong opportunities for upzoning and new development. Most lots in this area have significant potential for infill development, as existing buildings occupy only a small percentage of the available land.

Development in this part of the urban growth area and urban reserve faces significant challen - es. These areas currently lack sewer and water infrastructure, making septic tanks and wells unsustainable options for larger developments, such as single-family homes, multifamily housing, or middle housing. To support growth, water mains and sewer lines must be extended from the downtown core into the urban growth area and, eventually, into the urban reserve.
New developments in North Ferndale also bring social and commercial considerations that must be addressed. Currently, most shops, restaurants, services, and parks are concentrated in the downtown area, leaving North Ferndale without

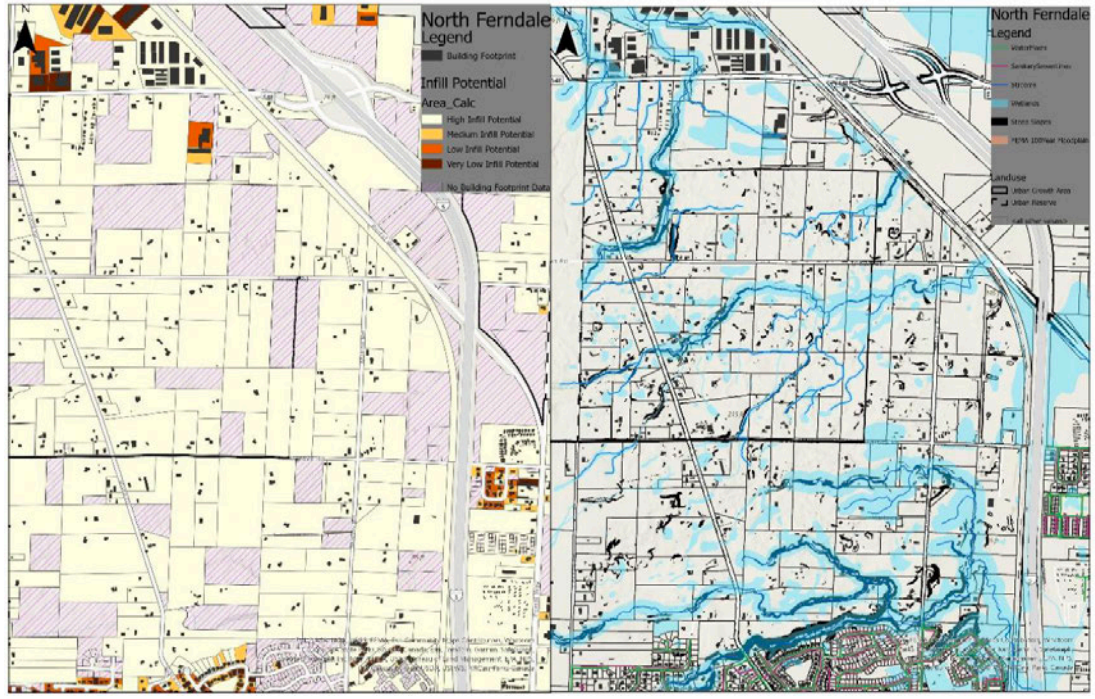


Figure 12: Infill Potential: North Ferndale

convenient access to these amenities. Establishing a "node" of commercial development in this area is one recommended approach to address these needs. Additionally, planning for parks and social spaces should be a priority to ensure a community that promotes social interaction and outdoor recreation.actions and survey results, may community members voiced a desire to relocate the ferry from the reservation.

Portal Way is another area with strong potential for infill development. Its proximity to I-5 and existing connections to the sewer and water system make it an attractive location for housing and mixed-use projects. The area already features some commercial development, which lowers the barriers to expanding retail and commercial spaces. This, in turn, enhances the walkability of new residential developments. Strategically planning retail and commercial spaces to meet the needs of future residents will be a key factor in the area's successful growth.
One significant challenge with this area is traffic. At the community kick-off event and

through online feedback, we received numerous complaints about congestion around the I-5 on-ramp. Additionally, the lack of sidewalks along the entire length of Portal Way further complicates efforts to improve walkability. Addressing these issues will require substantial investments in infrastructure to make the area safer, more accessible, and viable for the Ferndale community.

Like North Ferndale, this area has excellent potential for infill development. Most parcels have ample space for additional growth, classifying it more as a greenfield development opportunity. Its smaller size compared to North Ferndale makes extending water and sewer infrastructure more feasible and cost-effective. While there are concerns about critical areas, many existing buildings are already located near or even within these sensitive zones. With careful planning, it would be possible to design developments around these areas to minimize environmental impacts while maximizing land use.

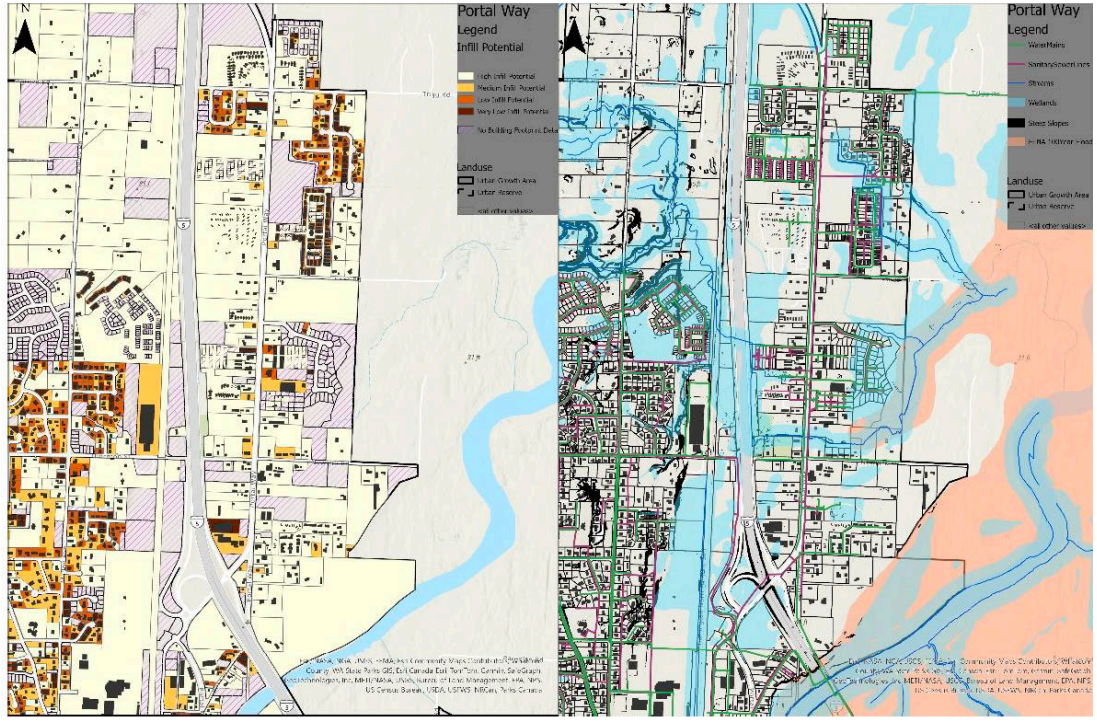


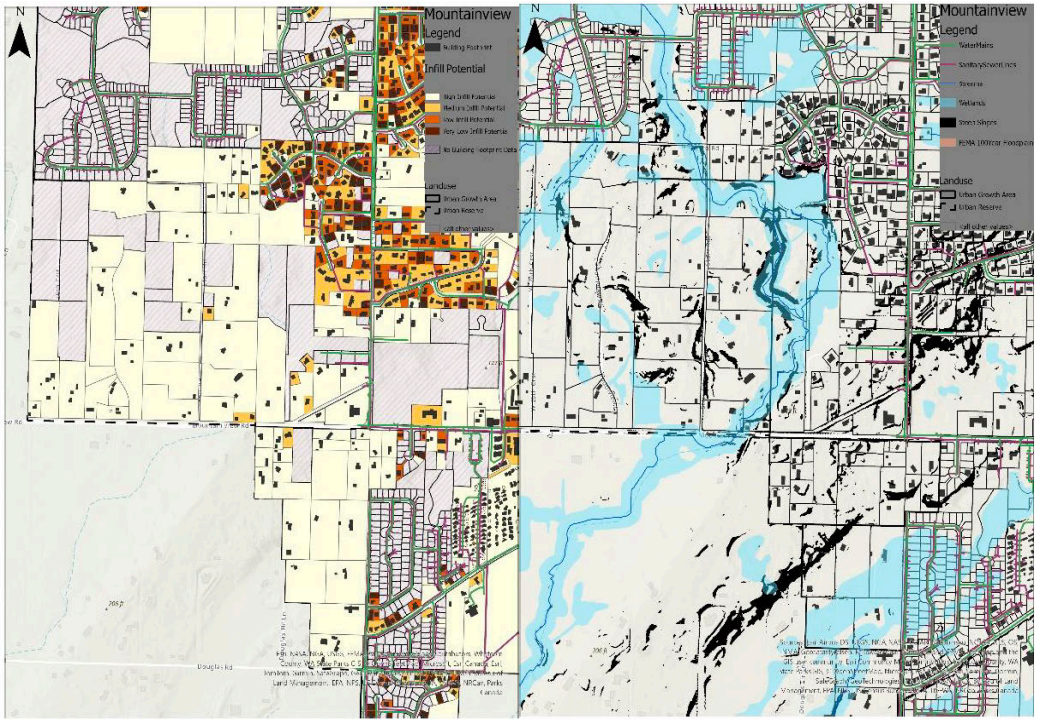
Figure 13: Infill Potential: Portal Way

AGE OF THE BUILT ENVIRONMENT

Ferndale has a long history of development, with its oldest colonial building being recorded to have been built in 1875. The downtown area is more recently built, ranging from the 1920s-1960s. The suburban developments surrounding the downtown feature increasingly newer buildings as you move farther north and south. The oldest suburban single-family homes were built between 1940 and 1960. In contrast, newer developments, particularly in the densely subdivided area northwest of the downtown core, contain a significantly greater number of homes and reflect more modern construction trends

ARCHITECTURAL CHARACTER

The following pages show the architectural character of the homes that were built in Ferndale, starting at 1900 and continuing until 2019.



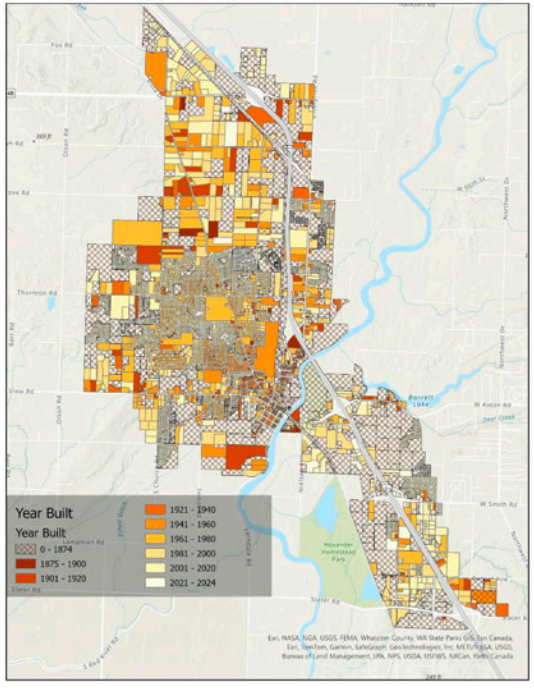


Figure 14, Above: Age of the Built Environment, Ferndal
Figure 15, Left: Infill Potential: Mountain View Road and Main

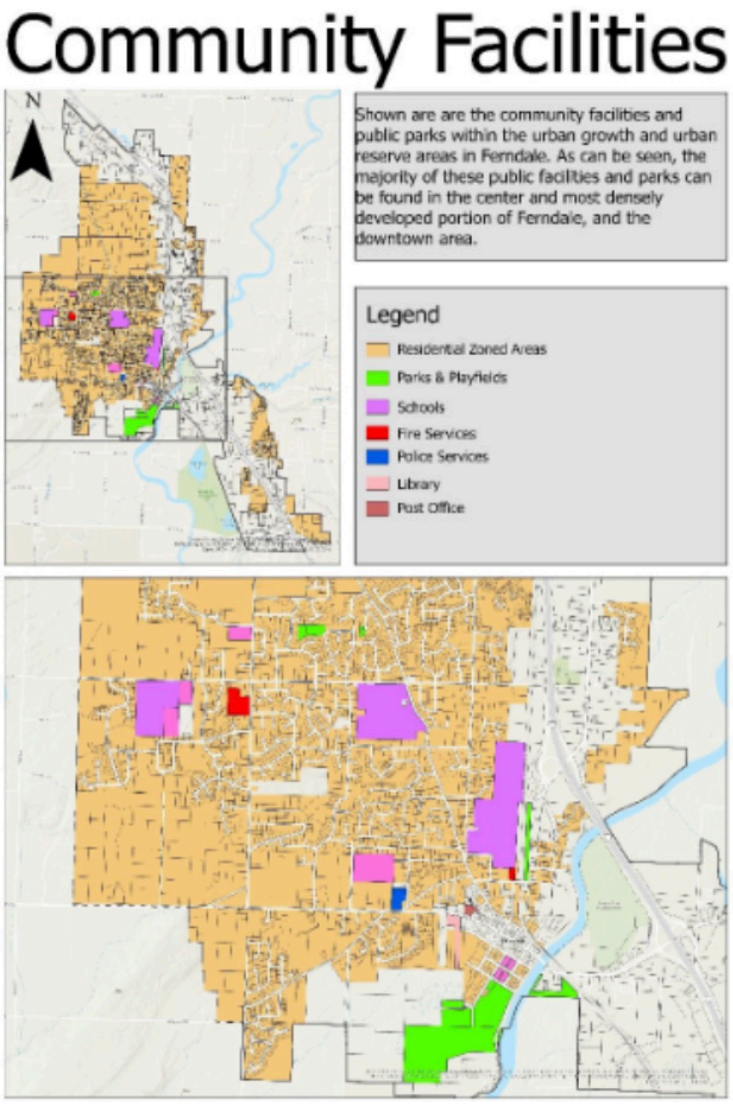


Figure 16: Community Facilities

1900-1920

1902 – 2116 Washington Ave.

1907 – 2033 Washington Ave.

1920 – 5812 Portal Way

Houses from this period reflect the transition from the Victorian era to early 20th-century styles like Craftsman, American Foursquare, and Prairie School. These three examples all share porch areas, pitched roofs, and elevated entryways. New technological advances, an interest in handcrafted products, and nationalism are all ideas that contributed to this era of housing.

Homes from 1921 to 1940 exhibit distinct architectural characteristics shaped by the post-World War I era, the Great Depression, and

1929 – 1973 Somerset Ave

1933 – 1952 Somerset Ave

1937 – 1068 Slater Rd.

a growing desire for efficiency and modesty in design. This period saw a blend of historic revivals and emerging modernist influences. In the example of 1973 Somerset, you can see that there was still a transition from craftsman-like styles into houses more similar to 1068 Slater Rd., which is a good example of the shift to minimal-style housing that were more budget-friendly than earlier, more extravagant housing, such as the Victorian era.

Housing from 1941 to 1960 reflects the impact of World War II, post-war economic growth, and the beginnings of suburbanization, marking a shift toward simplicity, functionality, and mass production. After World War II, economic prosperity and the GI Bill allowed returning

1941 – 1973 Somerset St.

1946 – 5841 Vista Dr.

1960 – 5719 Church Rd.

veterans access to affordable mortgages, fueling a massive demand for single-family homes. Mass movement towards the suburbs, contributed to by "white flight," contributed to this huge demand, therefore, developers needed quick, affordable housing solutions.

Housing from 1961 to 1980 reflects a mix of modernism, experimentation, and responses to evolving social and economic influences. The popularity of mid-century modern styles continued into the early 1960s, featuring clean lines, open floor plans, and la ge windows. These homes often integrated with nature through sliding doors, patios, and a minimalist aesthetic, emphasizing a harmonious indoor-outdoor flo .

1967 - 4002 Saltspring Dr.

Housing from 1981 to 2000 saw a continuation of suburban sprawl, a return to more traditional architectural forms, and a growing emphasis on personalization and comfort. This period is marked by continued suburban expansion, with large, planned communities and developments. New housing developments were characterized by wide streets, cul-de-sacs, and homes with front-facing garages. These areas were designed to appeal to growing middle-class families seeking more space, privacy, and a suburban lifestyle.

1970 – 1966 Grandview Rd.

1976 – 1958 Grandview Rd.

Housing from 2001 to 2024 saw and is still seeing significant changes driven by evolving lifestyle preferences, technological advances, environmental concerns, and the aftermath of the 2008 financial crisis. The trend toward large, opulent homes continued in the early 2000s, with McMansions often dominating suburban developments. These homes featured expansive floor plans, oversized garages, and multi-story layouts. Garages tended to be on the front of these houses, which you can see in all three of our examples during this era, which blatantly juxtaposes earlier periods, such as the 1900s to the 1920s.

1989 – 1460 Sunset Ave.

1990 - 5136 Byers Rd.

1997 - 6134 Pacific Heights Dr.

2001 – 5068 Labounty Dr, Ferndale, WA 98248

2011 – 2462 Douglas Rd, Ferndale, WA 98248

2019 – 5938 Jenjar Avenue, Ferndale, WA 98248

Crime Prevention Through Environmental Design (CPTED)

CPTED is a set of theories with the goal of providing a safe climate. The City of Chandler, Arizona has a resource through the police department that breaks down creating a safe physical environment into five di ferent "principles: natural access control, natural surveillance, territoriality, activity support, and maintenance."

Natural Surveillance: When the intended users can observe a property. Lighting can have a beneficial impact within this principle

Natural Access Control: When an organization or individuals control the number of access points surrounding a property. An example includes the Miller Market POD at Western Washington University (WWU), which has two access points, one near the entrance of Miller Hall, and one behind the main register. At specific hours, the ladder access point closes, making it easier for employees to survey the customers. Another example is a gated community.

Territoriality Reinforcement: The use of physical markers to reinforce a sense of ownership and/ or control over a space or property. These intentional design elements are meant to discourage criminal behavior.

Examples include, but are not limited to, an end of beautiful landscaping where the property line ends, changes in ground materials/textures (concrete v. gravel v. bark), or the use of hostile plants (rose bushes, agave, blackberries, etc.) to deter against nefarious activities or unwelcome visitors.

Activity Support: The intentional placement of activities to places where individuals become part of the natural surveillance. Laurel Park, near WWU in Bellingham, can be an example of this phenomenon.

Maintenance: A regularly scheduled maintenance routine will help the property maintain a sense of territoriality and promote natural surveillance.

3.3 Economic

DEVELOPABLE LAND MAPS

A Developable Lands map (also known as a Land-Improvement-Ratio map) quantifies the ratio of land value to improvement value and visualizes parcels to prioritize development. This map provides a holistic overview of development profitability and reveals patterns of underdevelopment. Our developable lands map identifies where to focus our development proposal efforts.

To create the map, we downloaded parcel-level property value data from the Whatcom County Tax Assessor, which separates property values into land value and improvement value (the value of all real and current improvements on the property). We calculated the land improvement ratio using the formula LIR = improvement value / land value. An LIR of 1 indicates a property is used at an adequate value; an LIR between 0 and 1 shows a property used above its value, while an LIR greater than 1 shows a property used below its value. We visually differentiated these cases to represent above-value and below-value properties distinctly. We also highlighted special cases, such as when both land and improvement values are 0, or when land value is greater than 1 but improvement value is 0.

The brown parcels reveal patterns of underdevelopment along Portal Way in North Ferndale, along I-5 in South Ferndale, as well as several underutilized parcels within downtown Ferndale. There are a number of parcels with no land or improvement value, which could be unassessed, or deemed abandoned or unusable. Further analysis on these parcels will be required.

This map provides insight into potential locations for Ferndale's future economic development. Going forward, brown parcels, and specific non-value parcels will be our priority in siting our development recommendations.

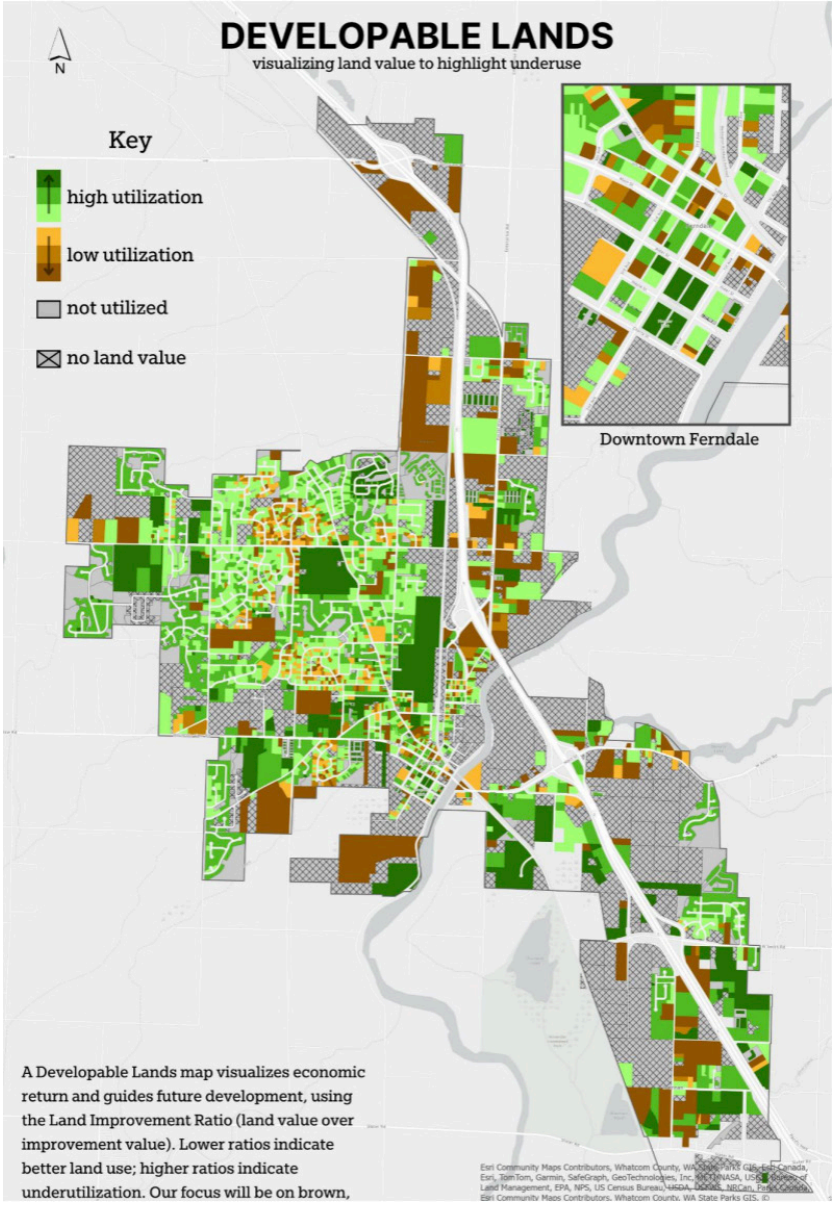


Figure 17: Developable Lands

It is no secret that when people can't find work, they struggle to meet their needs. Measuring the unemployment rate is a significant indicator for understanding the overall economic health of an area. The more access people have to employment opportunities, the more likely they will be able to provide for themselves and their loved ones. Local unemployment rates typically reflect state and national trends. When a country is doing well economically, unemployment tends to fall; when it struggles, it tends to rise. Two recent events that caused a spike in national unemployment were the 2008 Housing Market crash and the COVID-19 pandemic. Both of these events saw unemployment rise drastically at national, state, and local levels.

Within the past decade or so, Ferndale has had major success at curbing their unemployment rate. In 2010, Ferndale had an unemployment rate of about 9.5%, which peaked in 2013, reaching nearly 12%. Since then, however, this rate has been steadily declining, falling to about 3.4% in 2022. One of the reasons the Ferndale unemployment rate was exorbitant is likely due to the Recession and its effect on the industrial manufacturing sector. Industrial manufacturing is one of the largest employment sectors in Ferndale. During a recession, manufacturing companies tend to lay off employees due to supply shortages and temporary decreased demand. People are most frugal during times of economic strife, so there tends to be less investment. Historic economic data reveals that a recession typically leads to a major drop in industrial production, followed by a huge upswing as companies try to make back all the money they lost. As the US economy began to settle post-recession, this upswing in industrial manufacturing was likely a major factor in the reduction of unemployment rates as the job market became more stable again.

The trends in the Figure 18 signify that the Ferndale job market has successfully been stimulated in the past few years, providing new opportunities for employment and economic growth. While overall the unemployment rate has been declining, not all areas of Ferndale are experiencing these same rates of decline. Analyzing the distribution of unemployment is an important factor for influencing where new growth should occur or where to focus new employment opportunities. By understanding what areas are more vulnerable to unemployment, the city can then address future growth plans accordingly. Figure 20 shows a map of unemployment in Ferndale by block group. This map shows Census tracts 105.03, 105.05, and 105.06, the three main tracts which make up the city of Ferndale. While Census tract 106 also constitutes the south-eastern tip of the city, much of this tract does not incorporate Ferndale and therefore was

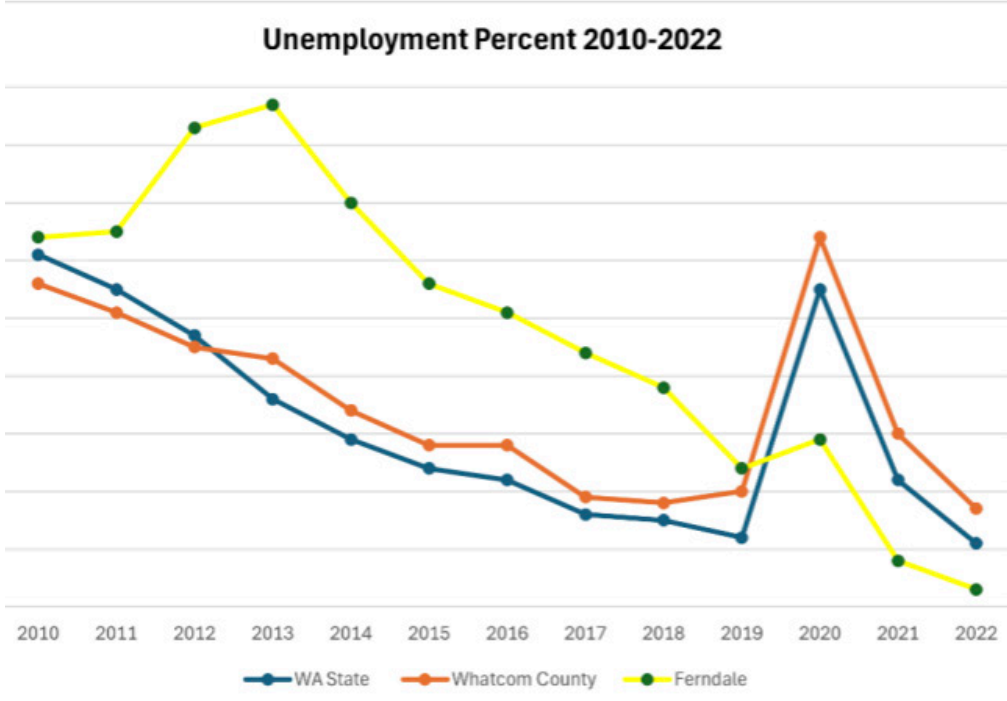


Figure 18: Unemployment Percent 2010-2022

omitted. According to the map, unemployment rates tend to be highest in the areas of South and West Ferndale. The three block groups with the highest unemployment rates are 105.03.1, 105.03.2, and 105.06.2. Combined, these three areas make up nearly 20% of Ferndale's unemployment, meaning they could potentially benefit the most from new economic and employment opportunities. Further investigation is required to understand why these three block groups are experiencing higher unemployment rates than the rest of the city. For now, however, targeting these areas for new development could be beneficial for reducing unemployment and providing economic opportunities.

Living Wage Calculation for Washington

The living wage shown is the hourly rate that an **individual** in a household must earn to support themselves and/or their family, working full-time, or 2080 hours per year. The tables below provide living wage estimates for individuals and households with one or two working adults and zero to three children. In households with two working adults, all hourly values reflect what one working adult requires to earn to meet their families' basic needs, assuming the other adult also earns the same.

The poverty wage and state minimum wage are for reference purposes. Poverty wage estimates come from the Department of Health and Human Services' Poverty Guidelines for 2025 and have been converted from an annual value to an hourly wage for ease of comparison. The state minimum wage data is sourced from the Labor Law Center and includes the minimum wage in a given state as of January of that year.

For further detail, please reference the Methodology page. The data on this page was last updated on February 10, 2025.

	1 ADULT				2 ADULTS (1 WORKING)				2 ADULTS (BOTH WORKING			
	0 Children	1 Child	2 Children	3 Children	0 Children	1 Child	2 Children	3 Children	0 Children	1 Child	2 Children	
Living Wage	$26.36	$47.96	$61.86	$79.43	$35.92	$43.49	$47.63	$55.99	$17.96	$26.38	$33.40	
Poverty Wage	$7.52	$10.17	$12.81	$15.46	$10.17	$12.81	$15.46	$18.10	$5.08	$6.41	$7.73	
Minimum Wage	$16.66	$16.66	$16.66	$16.66	$16.66	$16.66	$16.66	$16.66	$16.66	$16.66	$16.66	

Table 9: Living Wage Calculations for Washington

	Est. Living Wage x Avg. Household size	Quotient x Percent of Population	Wage totals
Trend Estimate (Single): 44.10%	23.52 x 2.92= 68.68	68.68 x .44	$30.23
Trend Estimate (Married): 56.90%	(32.07 x 2.92)/2= 46.82	46.82 x .56	$26.69
Total Hourly (Living Wage Est.)			$56.90
Annual (Living Wage Est.)			$118,352.00
Agg. Household Wages			493,972,512
Number of Households			5,212
Avg. Actual Wage			$94,776.00
Ratio: Annual (AW)/Annual (LWE)			R'=0.8

Table 10: Ferndale Living Wage

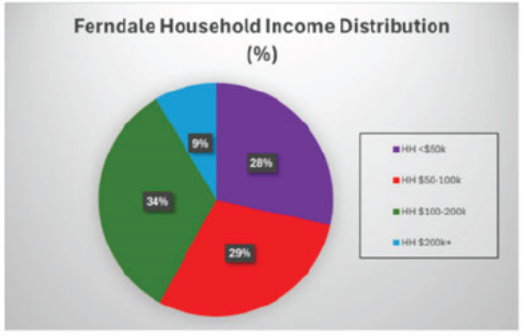


Figure 19: Ferndale Household Income Distribution

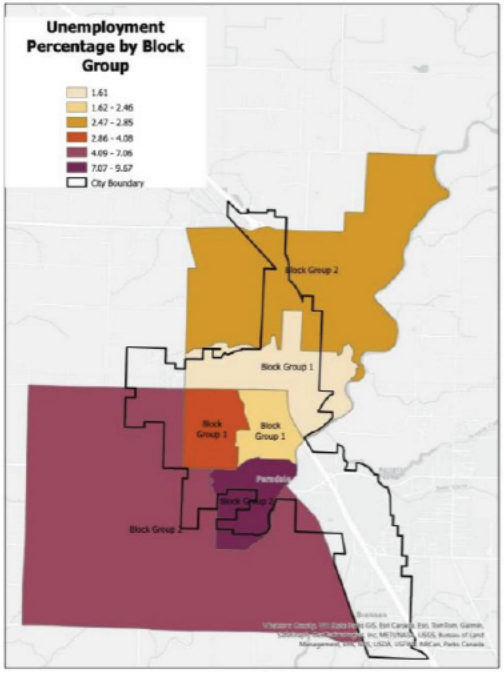


Figure 20: Unemployment Perfentage by Block Group

Wages are arguably the most important factor for assessing the economic quality of life for individuals. Understanding the relationship between the cost of living in a location and the typical wages directly impacts the overall quality of life a resident of said area can have. In the past few decades, the cost of living in the U.S. has consistently increased, while wages remain relatively the same. This can be seen by the steady increase of the Consumer Price Index, which has been increasing at about 1.5% per year over the past decade. Meanwhile, the Federal minimum wage has stayed at $7.25 since 2009, making it difficult for real wages to keep up with steady price increases. Low wages and a high cost of living means that families and individuals are more heavily strained when trying to cover their basic needs. This strain can ultimately lead to people taking more drastic measures to provide for themselves or their families. Currently, the minimum wage in Washington state is $16.28, one of the higher minimum wages of any state. However, Washington state also has one of the highest costs of living compared to the rest of the country, ranking as the 8th most expensive state to live in, excluding Washington D.C. Achieving the balance between earned wages and cost of living is imperative to ensure that residents are not only able to provide for their needs but also live enjoyably. Table 9 shows the necessary hourly wages an individual must earn to fulfill all necessary expenditures for themselves or their different family type in Washington state. This is significant since every household type listed in this chart requires an individual to earn more than the State minimum wage to provide for their needs, ultimately showing that current minimum wages are not consistent with the cost of living in Washington.

Ferndale Wages

Ferndale wages similarly reflect the fact that earning the hourly minimum wage is not nearly enough to support yourself or your family. Table 10 is a calculation of the Ferndale living wage. This calculation was done by separating and calculating the percentage of married-couple households and single-headed households out of the total number of households. Whatcom County's data for necessary hourly wages by family-type was then taken from the MIT Living Wage Calculator and multiplied by the average household size of Ferndale (about 2.92). This number was then multiplied by the percentage of the total household makeup to get the needed hourly wage between the two household types. The sum of those numbers then represents the estimated total hourly living wage needed per household. The combined wage was then multiplied by the total number of hours in a full-time work year (2,080) to get the estimated annual household wage needed to support the average household size. This number is then taken in proportion to the average actual household wage to create a ratio. A ratio of >1 means that actual average wages are lower than the living wage. In the case of Ferndale, the average household makes about $24,000 less than the estimated living wage. By this estimate, we can assume that the average Ferndale household is cost burdened, meaning they most likely have some difficulty paying for all their living necessities.

HOUSEHOLD INCOME DISTRIBUTION

The distribution of household incomes provides a background for the spread of wealth in an area. Ferndale's household income distribution is actually somewhat diverse. Figure 19 demonstrates the percentage of different household earning groups in Ferndale. As we can see, the percentage of distinct household earning groups is nearly even. Going further,

this data demonstrates that approximately 57% of households in Ferndale are making $100,000 or less annually. This is significant considering that the Living Wage Estimate for Ferndale is about $118,352. If these numbers are correct, this would mean that about 60% of Ferndale households are living below the estimated annual living wage. Further research is necessary to gauge the accuracy of this estimate. However, additional research should also be conducted to understand the current standard of living expenses for Ferndale residents.

Data Disclaimer

The following data is revised since the first Urban Analysis to represent more accurate categorizations of data. Initially, we used occupational sectors to conduct analyses, but the proper data was industrial classes. Unless explicitly stated to be occupational sectors, the data represents industrial classifications using NAICS code-compatible categories. Further, the scale of analysis at the micro-level is different, analyzing the Ferndale CCD as opposed to Ferndale city. This shows an area inclusive of major employers such as Lummi Nation and BP Cherry Point.

PROFILE OF MAJOR EMPLOYERS

The top three employers of Ferndale stand out in how many they employ compared to the runner-up largest employers with the city, employing about 200+ more people than the next largest employers (City of Ferndale, 2016). Unfortunately, recent and up-to-date lists of the top employers of the area are difficult to come b , except for the now-closed Alcoa Intalco Works Aluminum plant, all of the top employers listed in Ferndale's 2016 Comprehensive Plan seem to still be the top employers of the town, having increased employment in more recent years
The Figure 21 shows a brief profile of the top three major employers from the most recent data available (Taylor, 2023; BP, 2024; Alden, 2024). Both Lummi Nation and BP Cherry Point employ people primarily outside of the Ferndale City Limits, but the Ferndale School District primarily employs people within the city limits.

Ferndale is less economically diverse than Bellingham, Whatcom County, and the state. Highest 3 industrial share sectors (education, manufacturing, and construction) have median wages that are 75% or lower of AMI, meaning most people in the largest sectors are paid a low-moderate wage.

Employer Sectors

Ferndale's industrial sectors throughout the last decade are illustrated below. The shares remain relatively consistent across all time periods, but industries such as arts, construction, and professional services have expanded from 2016-2022.

Median Earnings by industrial sector by geographic level are shown below. The only sector where Ferndale's median earnings are higher than all other levels is in public administration.

Location Quotient

Table 11 shows the Location Quotient (LQ) and Basic Employment of Ferndale compared to the U.S. in 2022. All of the industries with an LQ of 1 or above have a higher degree of industrial specialization compared to the nation as a whole.

Market Capture

In 2022, Ferndale's population was around 15,000 people, where the market population was 25,829. This means Ferndale's market capture is 1.72, meaning that the market population is that many times greater than the actual population in town.

Key takeaways

The school district is a key concern, as it is the highest share industrially, is a top employer, and seems to be having trouble getting enough money to operate.

Despite the largest industrial share being

Lummi Nation

Jobs (2023)
1630
Countywide

- 2nd largest county employer
- Economic output exceeds $189 million
- Lummi Commercial Company
- Silver Reef Casino
- Not many holdings in Ferndale City Limits

BP Cherry Point

Jobs (2020)
975
Ferndale Market Area

- Supports 37,000+ jobs
- 2019-2023 $3.2 million in community investments
- Built 1971
- Not in Ferndale City Limits
- Keystone industry, large part of community identity

Ferndale Schools

Jobs (2019)
847
District-wide

- Schools within city limits
- Most recent budget cuts $5-6 million, 80% of which are staff costs
- Reduction in staffing 2024
- Employment relies on state, federal grants

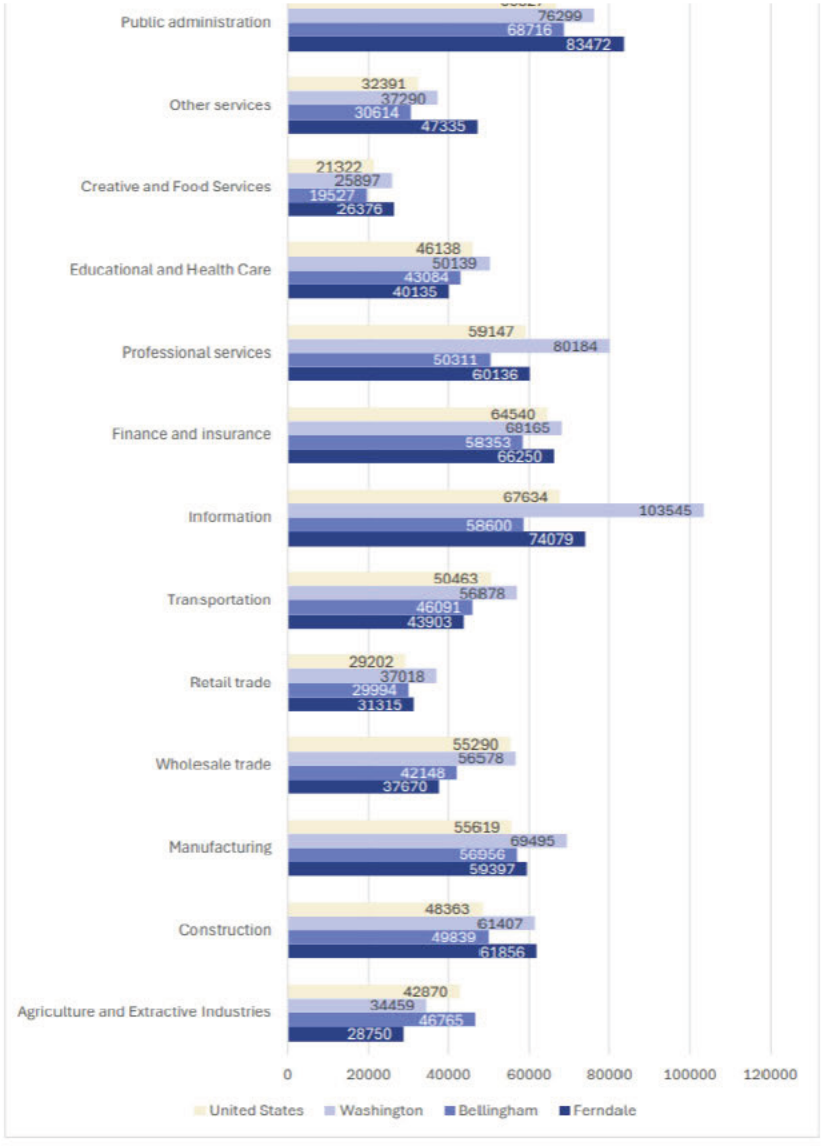


Figure 21: Ferndale top Employers (above)
Figure 22: Median Earnings by Sector 2022 Different Geographies (Right)

The primary source of information for projection data was the Whatcom County Projection Report (2024) which has information about Ferndale's standard growth scenario.

Table 11: Economic Impact (below)

Location Quotients and Basic Employment, Ferndale CCD				
ECONOMIC SECTOR	Employment, 2022		Location Quotient	Basic Employment
	Ferndale	United States		
Civilian employed population 16 years and over	17377	162590221		
Agriculture, forestry, fishing and hunting, and mining:	706	2546743	2.59	433.81
Construction	1767	11213024	1.47	568.60
Manufacturing	2076	16096892	1.21	355.63
Wholesale trade	387	3502056	1.03	12.71
Retail trade	1556	18073795	0.81	
Transportation and warehousing, and utilities:	835	9779768	0.80	
Information	218	3137801	0.65	
Finance and insurance, and real estate and rental and leasing:	1112	10967381	0.95	
Professional, scientific, and management, and administrative and waste management services:	1574	20474027	0.72	
Educational services, and health care and social assistance:	4056	37480570	1.01	50.22
Arts, entertainment, and recreation, and accommodation and food services:	1386	14097318	0.92	
Other services, except public administration	953	7675317	1.16	132.69
Public administration	751	7545529	0.93	

Source: US Census Bureau ACS 1-year estimate 2022 table S2403 - "Industry by Sex for the Civilian Employed Population 16 Years and Over."

Table 12: Whatcom County Projection Report (below)

Projection Report (2024) which has information about Ferndale's standard growth scenario.

Population and Employment Growth Projections (Standard Growth Scenario)						
Ferndale	2023	2025	2031	2035	2045	2023-2045 Growth
Resource Jobs	86	86	92	96	105	19
Retail Job	931	929	993	1,034	1,132	201
Commercial Jobs	4,460	4,451	4,755	4,953	5,241	961
Industrial Jobs	4,457	4,448	4,752	4,950	5,418	961
Total Employment	9,934	9,914	10,592	11,034	12,075	2,141
Population	16,762	17,340	19,438	20,803	24,025	7,263

Source: Whatcom County Population and Employment: Growth Projections and Preliminary Allocations 2024

Shift/Share Analysis: Ferndale CCD & United States, 2016-2022				
ECONOMIC SECTOR	National Effect	Industry Mix Effect	Competitive Effect	Total
Agriculture, forestry, fishing and hunting, and mining:	107	-131	96	72
Construction	254	182	-165	270
Manufacturing	394	-127	-517	-250
Wholesale trade	54	-89	104	69
Retail trade	268	-85	-206	-24
Transportation and warehousing, and utilities:	131	200	-268	63
Information	38	-29	-18	-9
Finance and insurance, and real estate and rental and leasing:	107	8	364	479
Professional, scientific, and management, and administrative and waste management services:	197	258	-43	412
Educational services, and health care and social assistance:	485	-27	737	1195
Arts, entertainment, and recreation, and accommodation and food services:	231	-100	-110	21
Other services, except public administration	137	-48	54	143
Public administration	153	-108	-196	-151
Total	2556	-96	-170	2290

Source: US Census Bureau ACS 1-year estimate 2022 table S2403 - "Industry by Sex for the Civilian Employed Population 16 Years and Over."

Table 13: Shift/Share Analysis Ferndale CCD

In comparing growth and industrial competitiveness of Ferndale as compared to the U.S., we conducted a shift/share analysis, pictured above. Competition is most evident in the educational services, and health care, and social assistance, most likely because the school district is such a central employer.

3.4 Infrastructure and Connectivity

TRAFFIC IMPACT ANALYSIS

The majority of available traffic data is from a study done by the City of Ferndale in 2015. I will use this data to interpret the major areas of concern and to analyze an understanding of the city's traffic system. This is in consideration of the fact that this data is nearly a decade old.

This section will also cover Vista Dr using 2024 data received from Bo Westford, the Public Works Supervisor for the City of Ferndale, for Vista Dr at Washington and Thornton. He informed me that the city was involved in a full count project this year when 6 of their 8 counters malfunctioned, and that the company they use is no longer in business and would not repair them. Since summer they have been shopping for a new system to hopefully purchase in 2025. I will incorporate this more recent data into the analysis below, but it is important to note that a significant amount of this recent data is missing and may be available next year.

The following table is from the City of Ferndale's Traffic Data page, and applicable to the following four sections.

Table 14 is from the City of Ferndale's Traffic Data page, and applicable to the following four sections.

	Average Daily Traffic (ADT) N/W	Average Daily Traffic (ADT) S/E	ADT Combined	Traffic Volume at 10:00AM	Traffic Volume at 5:00PM
Main St ES Douglas	8120.5	6151.8	14272.3	814.3	1089.1
Main St ES First Ave	7738.1	9802.5	17040.6	1087.5	1185.2
Portal Way WS I-5	6295.6	2118.1	8413.7	435.1	784.4
Portal Way ES I-5	26.0	3234.0	3260.0	179.4	351.3

Table 14: Traffic Volumes - Major Roads in Ferndale

Main St. ES Douglas
Main St at Douglas Rd, located West of downtown Ferndale, is a four-way intersection with three being primary roads with two lanes and an additional turn lane. The fourth is a small road which connects to a senior living facility. This intersection is the only direct connection developments on Douglas Rd have with Ferndale. Many new developments have been happening on Douglas Rd, along with a mobile home park and elementary school being present. This intersection has pedestrian sidewalks, crosswalks, and crossing lights on all four sides.

The data shows volumes of over 1,000 cars from 3:00-5:00PM. Volumes are over 700 from 7:00AM-7:00PM. This shows that this is a highly trafficked area, understandably so. Over the next 20 years, more developments will likely be made in this area, moving more people here and increasing traffic. There are some developments currently under construction which are visible from satellite view which support this hypothesis.

The open house in Ferndale highlighted major dissatisfaction for this intersection and this section of Main St in general. The first issue was the major traffic on Main St in this area making commute times unpredictable. Residents described that since the residential areas have so few outlets, with many of them being on Main St, there is varyingly heavy traffic on this street. The other issue is with Douglas Rd, which also has one major outlet to Main St, which seems like it may be more and more of an issue as developments continue this road.

Main St. ES First Ave
Main St at First Ave, located in downtown Ferndale, just West of the Nooksack River, is a four-way intersection, where Main St has the right of way and turn lanes, and First Ave has stop signs. There are pedestrian crosswalks and streetlights on all four sides. This is the first major intersection for cars going Northwest coming off of the Nooksack River bridge. First Ave connects with an elementary school and various parks, and Main St continues into the downtown core and further into residential

neighborhoods.

The data shows volumes over 1,000 between 9:00-6:00PM, with a combined volume throughout the day being 17,040 cars, making this the most heavily trafficked intersection in Ferndale. I would predict that traffic here may increase slightly, but not as significantly as more Northern areas. This is because there will continue to be some development along Douglas Rd, which may feed into the traffic at Main St, but regarding the comprehensive plan which is pushing development North of existing developments along Vista Dr, most of these will likely not make it down to Main St for their regular errands. It is more likely that they will go to the closer commercial developments along Portal Way or go around Main St via I-5.

Portal Way WS I-5

The Portal Way ramp on the West side of I-5, located just North of the Nooksack River, is connected via one-lane roundabout with both 2nd and Thornton St. This exit (263) is primarily used by residents of Ferndale living in the Suburbs North and East of downtown. There is a sidewalk and crosswalks connecting Thornton St and 2nd Ave to Portal Way, which passes under I-5 going East, then curves North.

The data shows a total of 8,414 cars moving through this roundabout each day. This traffic is distributed between those coming off I-5 from both directions and heading towards the West side of I-5, where most residential units in Ferndale are, those coming onto I-5, and those passing through to Portal Way. Traffic will likely increase slightly here as more people will be heading towards Portal Way for the new commercial developments.

The open house in Ferndale highlighted major dissatisfaction with this highway exit, which applies to the ES as well. The first issue is the size of the lanes in the roundabout and it only being one lane. Concerns were expressed for freight truck drivers moving through these roundabouts. The other issue is how short the on and off-ramps are, especially since drivers are quickly put on a narrow bridge. It was expressed that this is a major reason for accidents happening. Additionally, many expressed satisfactions with the addition of Thornton St connecting to the roundabout on the WS of I-5. However, some said this noticeably increased traffic

Portal Way ES I-5

The Portal Way connection I-5 exit 263, located just North of the Nooksack River, is situated as a small, flat, single-lane roundabout. There are no sidewalks or pedestrian crosswalks. The roundabout is low, and often driven over, evident by the paint being worn off significantly between the offramp and onramp of I-5.

The data shows a total of 3,260 cars driving through here each day, about half as many as on the other side of I-5. This is understandable as most cars are getting onto I-5 southbound, which is before this roundabout. This roundabout would handle most of the traffic coming o f I-5 Northbound and towards Portal Way from residential areas.

Vista Dr. NS Washington

Vista Dr at Washington St is a sort of Z-shaped intersection, where Washington St is staggered, so people must make two turns to continue on the road. This intersection is located just North of downtown, before Ferndale High School. On its corners is a First Baptist Church. This intersection likely takes lots of through traffic to the I-5 263 exit towards Portal Way. Washington St turns into 2nd Ave, connecting with I-5, Ferndale High School, and United Church of Ferndale. This is also the quickest route for traffic from Douglas Rd moving North on I-5. There is a bus stop on the South side of this intersection. There are sidewalks, crosswalks, and a center turning lane. Vista Dr is given the right-of-way, and Washington St has a stop sign on both sides. This road also connects residents on the Northern side of Ferndale to downtown and I-5.

Table 15 show2 an average of 11,694 cars traveling through this intersection daily. Given the multitude of uses discussed above, this is expected. Peak traffic is at 5:00PM, with over 1,000 cars moving through this intersection. This intersection is the third busiest in Ferndale, with the first two being along Main St. This can be projected to increase as economic development along Portal Way will bring residents through this area, especially from the new developments along Douglas Rd. Additionally, this intersection may be seen taking in some traffic from those in the developments from the North connecting them with downtown, given they do not take I-5.

At the open house in Ferndale, residents

expressed concerns about this intersection as being a “scary arterial” because of how fast people go on Vista Dr and how “jagged” this intersection is. Residents described Vista Dr as being too wide for its low-speed limit which encourages speeding, which is especially dangerous in the school zone it goes through. Many expressed interests in a bike lane being added on Vista Dr.

Vista Dr. NS Washington

	Vista Dr NS Washington 2015	Vista Dr NS Washington 2024	Vista Dr NS Thornton 2015	Vista Dr NS Thornton 2024
Average Daily Traffic (ADT) N/W	5543.9	4237.0	2744.0	1756.0
Average Daily Traffic (ADT) S/E	6150.6	3528.3	2964.0	2048.8
ADT Combined	11694.5	7765.3	5708.0	3804.8
Traffic Volume at 10:00AM	609.2	493.7	277.0	203.4
Traffic Volume at 5:00PM	1016.4	662.9	506.1	330.3

Speed Exceeded (2024)						
	25 mph	35 mph	45 mph	55 mph	65 mph	75 mph
Vista Dr NS Washington	92.8% (46765)	13.2% (6659)	0.3% (141)	0.1% (27)	0.0% (12)	0.0% (4)
Vista Dr NS Thornton	50.7% (13119)	0.4% (106)	0.0% (7)	0.0% (4)	0.0% (2)	0.0% (2)

(2024)	Average MPH	Minimum MPH	Maximum MPH
Vista Dr NS Washington	30.7 mph	10.0 mph	80.8 mph
Vista Dr NS Thornton	25.0 mph	10.0 mph	81.5 mph

Tables 15: Viasta Dr. NS Washington Traffic Volumes & Speeds

Vista Dr SS Thornton
Vista Dr at Thornton is a four-way stop at Skyline Elementary School, which is adjacent to Vista Middle School, north of downtown Ferndale. On all four sides of this intersection are residential areas, further extending South and West. To the East is an I-5 interchange and Portal Way. There are sidewalks and pedestrian crossings on all sides. There are no lights to indicate a pedestrian is crossing.

The data shows mostly even car traffic throug - out the day. North/South traffic will likely increase as residents coming from Northern Ferndale, under the planned developments of the Comprehensive Plan, will use Vista Dr to get to Downtown Ferndale. Additionally, residents of existing areas will be traveling more West/East as they are drawn to the economic developments along Portal Way.

This intersection seemed to be a controversial intersection for Ferndale. Many residents expressed frustration that it is a four-way stop, specifically that Vista Dr has to stop since it is a major through-street. However, others were grateful for this since it requires everyone to slow down at this intersection where many young students cross the roads.

I-5 at Grandview Rd
There was no data available for I-5 exit 266, which connects to Grandview Rd, which is the Northern border of the planned residential developments under City of Ferndale's Comprehensive
Plan. However, this exit interchange has been identified as highly important, as many of the new developments may direct their traffic onto here as it will be the closest entry to I-5 for them. This may also be used by those coming from the North of Ferndale to access the new commercial developments along Portal Way.

Trip Generation Assessment

Mode Choice: Private Automobile
Ferndale residents rely heavily on private automobiles as a main source for transportation. With limited public transit which is offered, most residents must own and operate private vehicles to get around town. This car-centric approach is most common in cities with lower population density and suburban sprawl. Due to this car-centric approach individuals are much more susceptible to traffic congestion, air pollution and a decline in quality of life. Ferndale should aim to move towards a more sustainable transportation system which incorporates more multimodal transportation options that residents and commuters can utilize. Investing in more public transportation, bike lanes and pedestrian infrastructure can encourage people to choose greener modes of transportation. By incorporating and investing in these alternative modes of transportation, the City of Ferndale can become a more livable and sustainable city.

Mode Choice: Walking
It is important to include walking as a mode of transportation since it has remained a vital foundation of our modern transportation system. Every trip begins and ends with a brief walk and many personal trips will often involve some requirement of walking. This could include trying to get to an individual's personal destination, such as getting to a bus stop, grocery store, to and from a car, etc. Walking is reliable for many that can do so because it is the least expensive mode of transportation and excellent for short trips, however, walking becomes less attractive to many as the duration of the trip becomes longer.

In urbanized areas walking is easier because many areas are closer together and therefore more walkable. The City of Ferndale contains both r together and therefore more walkable. The City of Ferndale contains both urban and rural attributes which can promote walkability within those urban areas but becomes more difficult as the land becomes more rural. As one ventures further from the city center walkability becomes more difficult for those trying to get to their jobs, school, shopping or other activities.

Ferndale has walkable areas but there is still lots of room for improvement. Residential development within the city limits often predates the Growth Management Act which can discourage many from wanting to walk due to a lack of connectivity. Ferndale has started to require sidewalks for all new developments and arterial streets and certain areas might require other perimeters to abide by city standards.

Future projects focus on a variety of factors including residential, commercial and retail facilities which are in the historic downtown area and along the Nooksack River. The city has recognized that these projects will provide more

economic incentives regarding investment and re-investment in the downtown community. The City of Ferndale is actively working alongside with the Parks, Recreation and Trails Master Plan which was established in 2016 (City of Ferndale, 2023). Together they are working on incorporating a trail system and sidewalks which would increase the connectivity to areas that might not be necessary to use a car to get to. Increasing access to these trails and providing alternative routes will ultimately reduce the need to use a car and reduce congestion. As population and density increase this will in turn users closer to services which would promote alternative modes of Transportation including pedestrian and bike routes.

Mode Choice: Bicycle
The city of Ferndale is attempting to implement a Bicycle Systems Plan. This plan shows existing bicycle systems, but the majority of the plans are proposals to implement new facilities. It is the city's job to ensure safe routes for cyclists to mitigate the chances of injury or loss of life. The city wants to emphasize the importance of bicycling as both a method of exercise and to promote alternatives to motorized methods of transportation.

The six-year Tip Program has included a variety of new projects which will include the revamp of old bikes lanes and incorporate new bike trail connections around the city. The image to the right shows the proposed Bicycle Systems Plan and the routes which would be established though this plan. The city plans to put a greater emphasis on facilitating more bicycle traffic along Main Street and bicycle safe outes to and from schools within Ferndale. Ferndale is planning on collaborating with both the City of Bellingham and Whatcom Couty to develop regional bicycle trail connections (City of Ferndale, 2023). This plan was introduced and enforced in October 2001 and has been updated in the years 2007, 2012 and 2013. As shown on the map to the right, the bike trails extend outside of city limits. These trails will eventually join with other bike trails around Whatcom County to create a loop trail for citizens to utilize.

Mode Choice: Public Transportation
Public Transportation options in Ferndale are extremely limited. There are currently two bus routes which are active, and one Park and Ride option offered. The lack of access to public transportation discourages individuals from pursing sustainable modes of transportation.

Transit and Transportation Demand
The city is working to incorporate alternative methods which would increase traffic efficienc without costly infrastructure projects to add additional capacity. Ferndale is working to provide a comprehensive transportation system which understands the importance of both transit and transportation demand management throughout the city. Ferndale should continue to work alongside the Whatcom Transportation Authority and the Whatcom Council of Governments to come up with incentives to promote alternative methods of transportation during peak traffic hours

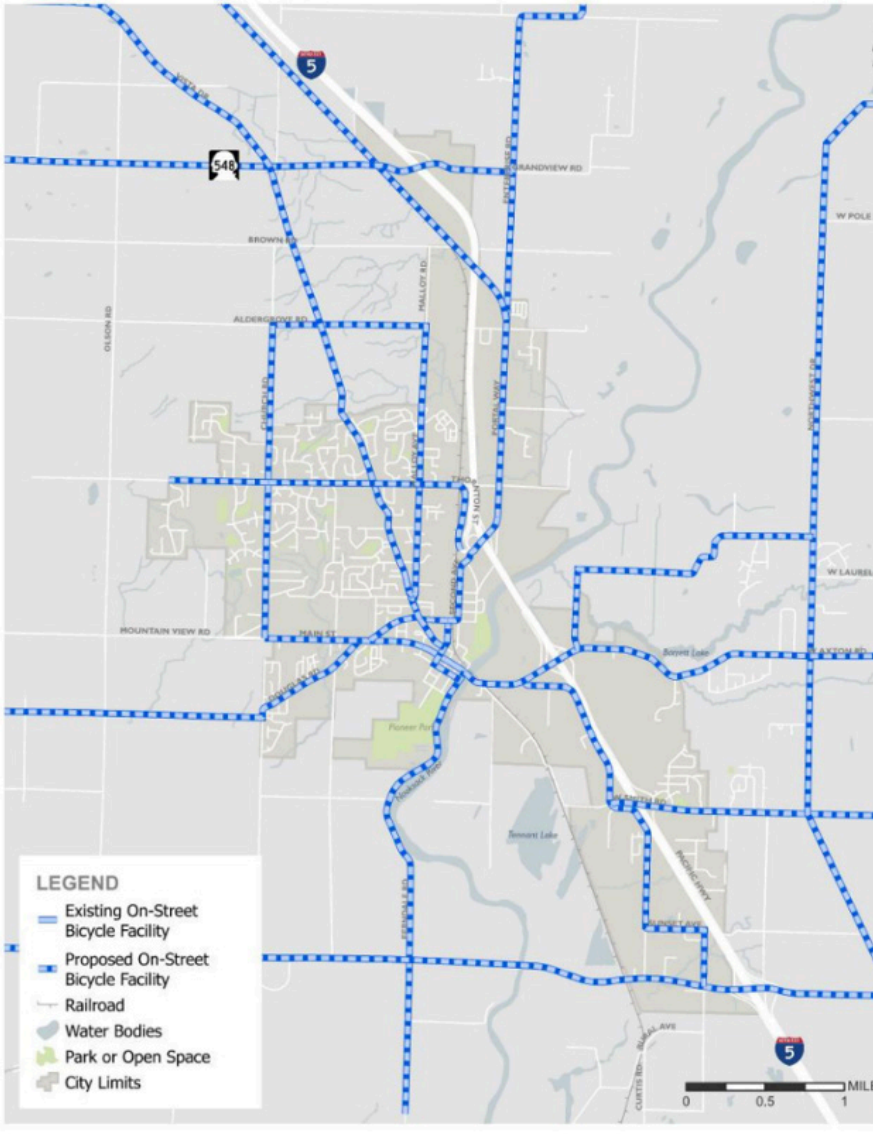


Figure 23: City of Ferndale Transportation Element, 2023

Methods these groups might want to encourage for public transportation include carpooling, vanpooling, walking, or biking (Ferndale Transportation Element, 2016). The city has been actively working with local employers to also encourage their employees to utilize the public transportation methods to help reduce peak hour traffic within Ferndale

The city plans on continuing to work with WTA to develop and improve current and future transportation systems. Focusing on convenience and efficacy when integrating these new systems will increase optimal use for individuals who will rely on these transportation systems. By doing so this will encourage individuals to be more included to utilize these systems and in turn lower congestion rates around the city.

The city uses a program titled the "Transportation Demand Program" to incentivize residents to utilize alternative modes of transportation. Employers in Ferndale could incorporate various incentives to their employees to pursue these alternative transportation methods. Transit incentives could allow employees to receive free or reduced rate transit passes from employers. Another method which has proven to be successful, especially since Covid, is telecommunication, which would allow employees to work from home and reduce the number of trips made through Ferndale and further reduce congestion.

Other alternative methods might include ridesharing with other employees who might be going to the same area. This would also create a

greater sense of community and learning more about the people who live or work in the same area. Employers could also allow flexible work schedules which would help employees stay off the road at peak traffic hours since most the time people tend to get off work around 5:00PM. Lastly, to promote biking or walking to work major employment centers could include areas where employees can park their bikes safely and provide shower facilities on site for those who might've worked up a sweat before entering the work place (City of Ferndale, 2023).

The city can help provide ideas or incentives to those who want to participate; however, employers must also be on board with these changes. This can be a difficult task since businesses might find these investments to be a poor use of resources and getting employers on board with spending funds on these areas might be difficult to incorporate.

Peak Hour Traffi

Ferndale's typical peak traffic hours are between 4 and 6 p.m., however, these times are often susceptible to change by starting or ending earlier than those typical hours. Traffic volumes are provided by the City of Ferndale and Washington State Department of Transportation (WSDOT). Most existing traffic volumes which are currently available are from a study done in 2015 (City of Ferndale, 2023) and are in need of an update. Interstate Five had the highest corridor volumes at about 4,900 trips during the weekday PM peak hour. Main Street and Slater Road had the next highest number of trips (between 1,000 and 1,800). Vista Drive has 500 to 1,200 trips. Grandview Road (SR 548) and Portal Way were typically 400 to 900 trips. Daily traffic volumes are approximately 8 to 12 times the PM peak hour traffic volumes (City of Ferndale, 2023). The Transportation Element update which took place in 2010 required Ferndale to revise their Level of Service (LOS) standards. Two main components were focused on by the city to define the adequacy of its transportation system. The first component that was included was the ability to maintain a reasonable speed to and from Interstate Five to other main corridors which served to control traffic. The second component was to ensure intersections on arterials would operate effectively without serious delays during peak traffic hours. The graphic below shows the existing PM peak hour intersection levels of service and the grades they have received.

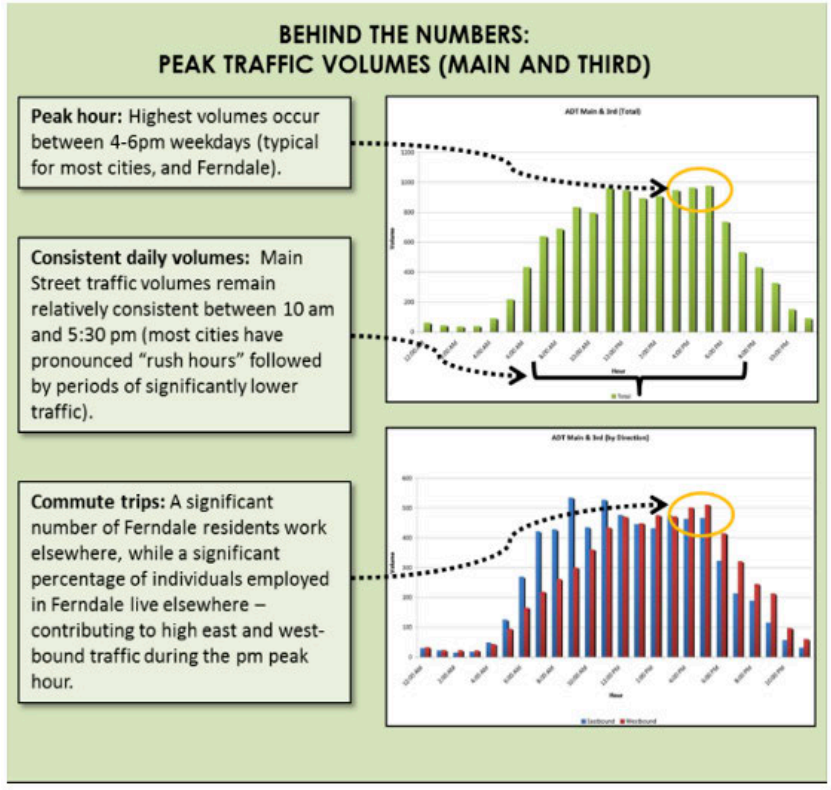


Figure 24: Behind the Numbers: Peak Traffic Volumes

Existing PM Peak Hour Intersection Levels of Service

Intersection	Jurisdiction	Control Type[1]	LOS Standard	2015 PM Peak Hour LOS[2]	2008 PM Peak Hour LOS[3]
Grandview Road / I-5 NB Ramps	WSDOT	Unsignalized	D	C	F
Portal Way / I-5 NB Ramps	WSDOT	Unsignalized	D	F	C
Main Street / Hovander Road	City of Ferndale	Unsignalized	E	F	E
Main Street / Barrett Road	City of Ferndale	Unsignalized	E	D	C
Main Street / I-5 NB Ramps	WSDOT	Signal	D	F	B
Washington Street / Vista Drive (east leg)	City of Ferndale	Unsignalized	E	D	D
Slater Road / I-5 SB Ramps[4]	WSDOT	Roundabout	D	A	D
Slater Road / I-5 NB Ramps[4]	WSDOT	Roundabout	D	B	D
Slater Road / Pacific Highway[4]	Whatcom County	Roundabout	n/a[5]	A	F

1. "Signal" = Typical traffic signal; "AWSC" = All-way stop control; "Unsignalized" = all other types of stop control, such as two-way stop or partial stop control.
2. Level of Service (A to F) as defined by the *Highway Capacity Manual* (TRB, 2010)
3. 2008 level of service from 2012 Transportation Element.
4. Roundabouts were installed in 2015. Previously TWSC intersections.
5. Whatcom County does not have an intersection LOS standard.

Data Source: City of Ferndale Transportation Element, 2023

Table 16: Existing PM Peak Hour Intersection Levels of Service

The first component that was included was the ability to maintain a reasonable speed to and from Interstate Five to other main corridors which served to control traffic. The second component was to ensure intersections on arterials would operate effectively without serious delays during peak traffic hours. The graphic below shows the existing PM peak hour intersection levels of service and the grades they have received.

Assess Sustainable Transportation

Increasing sustainable modes of transportation would allow for increased transportation options for road users and to less road wear and required maintenance. Residents who attended our open house in Ferndale expressed dissatisfaction with the bus routes, specifically how infrequently they come and that they only go in one direction. Also, very few residents consider using the bus because they found walking and biking to be more affective ways to get around town. To make bussing in Ferndale more sustainable the existing route 27 would need additional service, However, there is not demand in Ferndale to expand service. If there was additional development around bus stations there would be a justification for increased capacity on the route. The one-way loop of route 27 also does not provide adequate service because of its uni-directionality. If there was enough demand WTA flex service could be used to provide a bus in either direction of the loop every hour with service to Cordata station increasing to once every 30min.

In addition, Ferndale should continue to encourage residents to avoid personal vehicles by making walking, biking, and using micromobility options like e-scooters, e-bikes, one-wheels, and more. a substantial number of respondents expressed interest is better bike safety and some also claimed to use bikes on a regular basis, however there was expressed anxiety stemming from sharing the road with cars. Solutions for this would likely involve creating continuous sidewalks, urban trails or protected bike lanes that would more adequately separate car and bike traffic. Although there was overwhelming support for multi-modal transit, we did have one or two respondents who were skeptical about biking, asking why bicyclists don't pay road taxes. A counter-argument to this and reasoning to invest in these forms of infrastructure would be the cost to maintain them would be much cheaper than car infrastructure. The U.S Government Accountability office cites in a 1979 study that One indication of the impact of heavy truck weights on. The study utilized "damage units" toward road infrastructure and concludes that as "higher weights allowed under the new limits will shorten both pavement and bridge serviceable life". As vehicle weights have periodically increased over the past 50 years, using alternative, and much lighter modes of transportation along paved roads would allow for significantly longer service life spans.

Transportation Improvement Projects and Programs

Ferndale has evaluated future and preexisting traffic volumes and traffic operations which would contribute to emphasizing safety and circulation needs around the city. The projects have been sorted into five separate categories which will highlight the areas that need to be improved. The categories are intersection operations, widening reconstruction, new roadways, other agency improvements and citywide programs.

Intersection operation focuses on the improvement of intersections which could include new roundabouts, turn lanes, modifications to traffic controls and in some

cases upgrading traffic signals. Widening reconstruction places emphasis on widening corridors which would increase the capacity for traffic volumes along with adding more areas for non-motorized transportation. Other agency improvements highlight areas around state highways and/or outside the Cities UGA. Lastly city-wide projects are projects which would be ongoing within city limits. There are already a variety of projects which have been incorporated under the six-year Transportation Improvement Program.

Future Land Use Changes Under the 6-year TIP

The following projects which have been established under the six-year Transportation Improvement Program (TIP) are to prepare and adopt a comprehensive Transportation Program for the City of Ferndale. It is important to note that these plans do not have to be completed during this six-year timeframe. The following projects below include a brief summary of the intended purposes of the project, where the project will take place within city limits, anticipated costs and funding expectations.

Pedestrian Accessibility

Sidewalks are primarily concentrated around residential neighborhoods, but they tend to be sporadic and disconnected throughout the city. These sidewalks are mostly designed for leisure rather than for functional connections to other parts of Ferndale. The exception is in central downtown, where sidewalks are more continuous. However, their presence diminishes noticeably the farther one gets from the city center.

Public Transportation

Ferndale is served by two Whatcom Transportation Authority (WTA) bus routes: 27 and 75.

·Route 75 travels along Portal Way, connecting Bellingham to Blaine.

·Route 27 loops through Ferndale's residential areas before returning to Bellingham.

The city has a Park and Ride facility located at Ferndale Station (1671 Main St), just east of I-5 Exit 262. WTA also provides paratransit options, covering most areas in Ferndale.

Cycling Infrastructure

Ferndale lacks a comprehensive map of its bike infrastructure, and designated bike lanes or trails appear to be minimal. Observations indicate the presence of a bike lane only in the downtown area along Main St, specifically north of the bridge over the Nooksack River. This stretch of Main St, between First and Third Avenues, stands out as Ferndale's most complete street. It features:

-Traffic light
-Pedestrian crossings with crosswalk buttons
-Sidewalks in front of businesses
-Benches, garbage cans, and human-scale streetlights
-Buffers, including parking and bike lanes, separating moving traffic from sidewalk

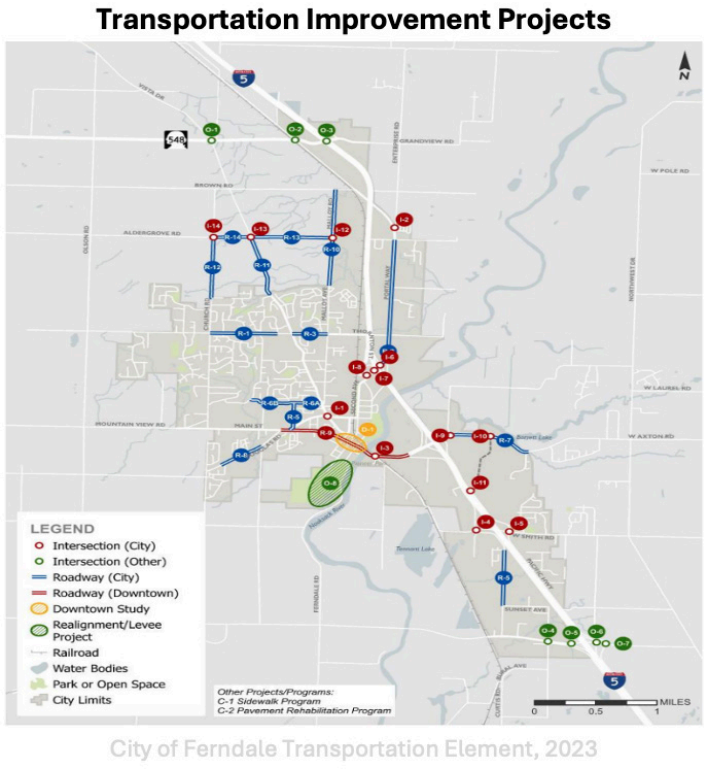


Figure 25: The map above showcases a broader range of transportation improvement projects and where they will commence around the city

Other Modes of Transportation
The City of Ferndale does not currently offer rental bikes or scooters. Ride-sharing services like Uber are available but operate on a limited scale.

Utilities and Infrastructure Analysis
The City of Ferndale provides access to clean water lines and the sanitary sewer system. Electricity, natural gas, internet, telephone and garbage services are provided by various private organizations detailed in this section.

Water and Sanitary Sewer
Any building within the city of Ferndale that has received approval of a building permit is required to already be connected to the water and sewer system or create a new connection during construction. These new connections are often required to pay a fee to the city (FMC 13.08.060, FMC 13.20.060).

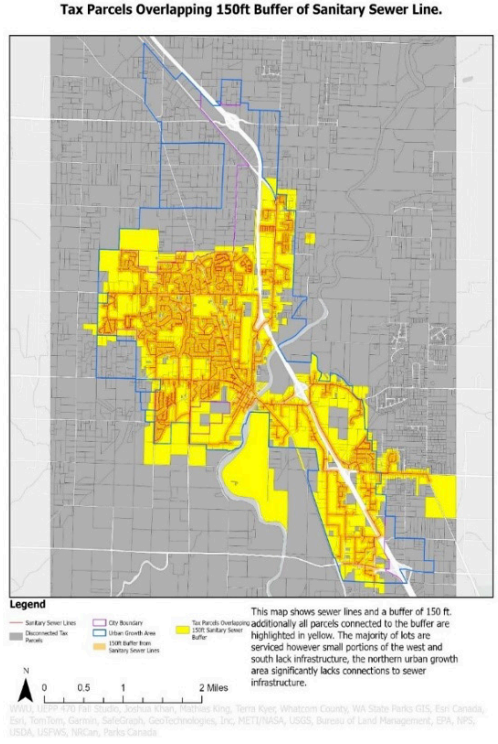
Below are two maps showing the existing water and sewer lines serviced by the City of Ferndale, including some which exceed the city limits, outlined by an orange and blue line, respectively, and lightly colored parcels within a 150ft buffer around the access lines. The graphs show coverage of existing developments within Ferndale city limits and some expansion, especially water systems, to the East.

It is important to note that the City of Ferndale's water and sewer system connects to parcels up to 200ft away, as noted in FMC 13.20.020, despite this graph showing a 150ft buffer.

Since most development will be occurring in the Urban Growth Area, which is to the Northwest of existing developments, significant expansion will be necessary as these areas are not already covered.

Electricity and Natural Gas
Puget Sound Energy (PSE) provides electricity to Ferndale, while Cascade Natural Gas provides gas. The map below shows the electricity lines running around and connecting to Ferndale and PSE's substations in the area. Ferndale is a well-serviced area, located close to major power lines and with multiple distribution stations in both the North and South of the city. Because of this, there should be no necessity for any major developments around electricity services. PSE generates most of its energy from hydropower, which is a very renewable and sustainable option.

Internet and Cellphone Services



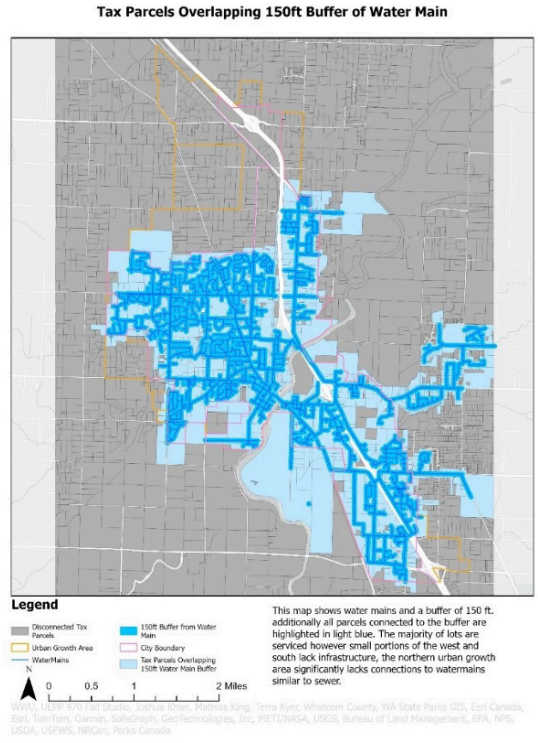


Figure 26: Tax Parcels Overlapping 150ft Buffer Sanitary Sewer Line (Left)
Figure 27: Tax Parcels Overlapping 150ft Buffer of Water Main (Right)

Comcast is the primary internet provider in the City of Ferndale, and Whatcom County as a whole. It has been expanding its services over the last several years, increasing both area coverage and quality by introducing faster speeds through its fibe -rich approach to network improvements.

Comcast also boasts about its participation in the federal government's Affordable Connectivity Program, which provides vouchers for internet service. With Comcast's plan made specifically for this, those eligible for this program can have internet access effectively for free. This has positive implications for low-income residents in Whatcom County and the City of Ferndale.

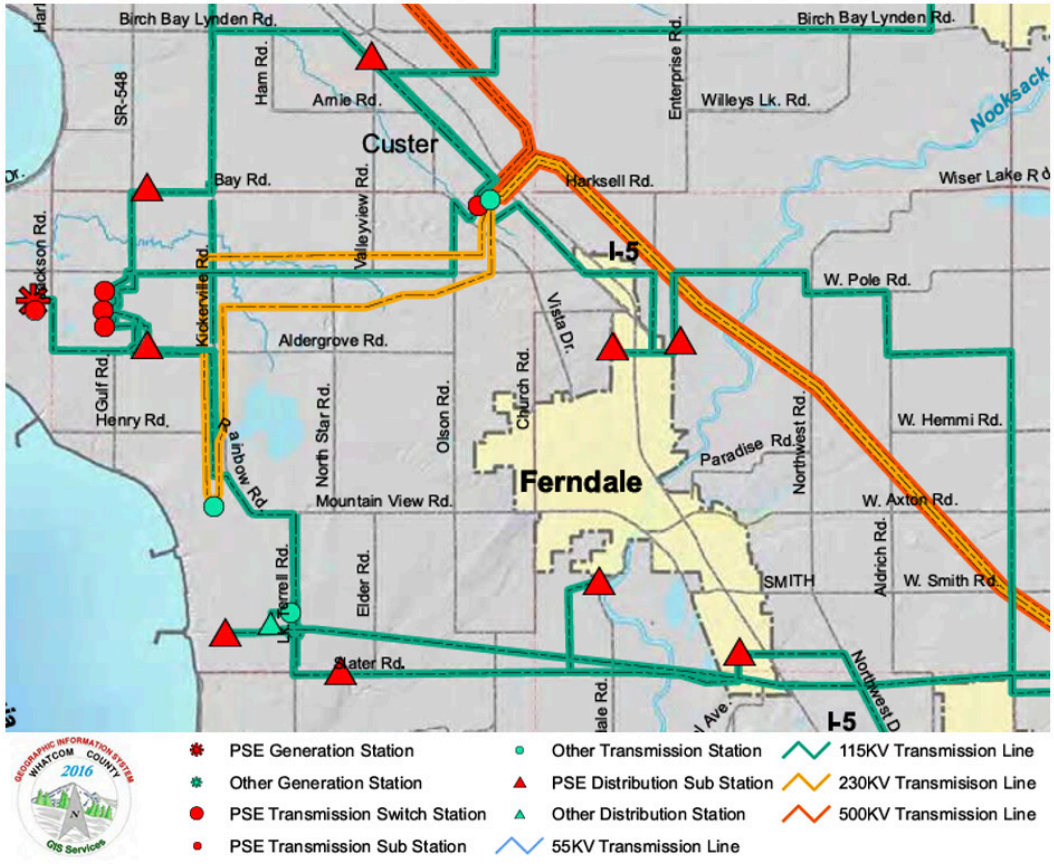


Figure 28: Ferndale PSE Utilities Map (Source: PSE)

Ziply Fiber services Ferndale, but only in a few, select locations, such as the central downtown area, the southern half of Portal Way, and a little bit along Vista Dr and Thornton St. New services are under construction for a majority of the single-family homes in Ferndale West of Vista Dr, with planned construction further North on Portal Way where many commercial developments will be happening. There are no current plans to expand into the Urban Growth Area where Ferndale expects to see the most residential development. For this area, residents will have to stick to Comcast or Starlink, which is discussed below.

Starlink is a new service available in Ferndale. Since Starlink provides internet access via satellite, it is available for anyone in or around Ferndale, including all areas of new developments expected within the next 20 years. Starlink is a new service, which we may begin to see the effects of in the coming years since it will be in direct competition with Comcast.

As for cellphone service, Landlines are provided by Verizon, while cellphone towers are owned by ATT, Verizon, T-Mobile and Sprint. The locations of these cellphone towers are shown in the map below, indicated by a red cross (Whatcom County 2016). This is an interesting example, showing many other service providers are in the area and may one day expand other services to Ferndale, but are not at the moment.

Garbage services are provided exclusively by

the Sanitary Service Company, whose base of operations is located along Slater Rd, in the southern area of Ferndale. They gather garbage from homes in Ferndale, while some areas recycling and compost are not offered. Their on-site facility offers garbage, recycling and compost services, while toxic waste disposal is located further South of Ferndale. The Sanitary Service Company also services Bellingham, bringing in greater tax revenue to the City of Ferndale.

Interdependent and Multi-scalar Analysis
The transportation and infrastructure in Ferndale is deeply connected with environmental, social, economic, land use, and housing and built environment aspects.

The utility sector regarding stormwater systems is directly connected to environmental considerations. On the micro scale, the effectiveness of stormwater systems in Ferndale can help mitigate chances of floods and prevent over-burdening soil. On the macro scale is the carbon emissions caused by Ferndale catering to cars and disincentivizing walking and biking.

Availability of parks, trails, and other recreational areas are known to boost mental health, and it is all the more important in Ferndale, which is far north and has short daylight hours in the winter. These areas also serve as connections to nature and spaces for physical activity and clean air, all known for boosting mental and physical health. In Ferndale, there is a concern for being able to access these parks by foot or bike. Of course you could drive there, but that sometimes defeats he point and makes it more of a trip to go to your nearby park. Infrastructure that connects residential areas to these parks would be greatly beneficial. This overlaps with the social group for mental health and the land use group for availability of parks.

Previously, we mentioned Comcast boasting its participation in the federal government's Affordable Connectivity Program, which provides vouchers for internet service. With Comcast's plan made specifically for this, those eligible for this program can have internet access effectively for free. This factor plays well i nto social, economic, and housing and built environment groups because of the benefit to low-income residents in Whatcom County and the City of Ferndale which may release some stress of monthly payments.

With anticipated economic growth coming to Ferndale, pedestrian infrastructure will be necessary in these areas, specifically along Portal Way, but also in neighborhood areas. Ferndale residents showed interest in neighborhood economic activity, such as corner stores or small cafes within walking distance of their home. However, there is little incentive for businesses like these to open up, especially with lack of infrastructure to support the trip to their store, making it more out of the way than it should be. In addition, major areas such as Portal Way will require major renovations due to the anticipated economic growth in this area.

The Ferndale residents raised the point that areas of high-density development, such as in the southern area of Ferndale, often do not have sidewalks, and if they do, they do not connect directly to any important or useful services. They raised the concern that this disinvestment in these poorer areas may be setting them up for failure in the future and seek infrastructure improvements now. This topic also connects with the housing and built environment group.

The Sanitary Service Company's presence in Ferndale is a great benefit to the economy of Ferndale, derived from the utilities which our topic covers. This is a small but significant overlap due to the tax revenue the city receives.

The transportation and infrastructure group overlaps significantly with the housing and built environment group since we are both looking at physical infrastructure such as sidewalks, roads, street lighting, bike lanes, etc. Most of this analysis has focused on the connectivity of infrastructure between locations in Ferndale, but the built environment aspect focuses on the quality, such as how comfortable people feel using each type of transportation. For example, although bicyclists may use the same roads cars do without a bike lane, it increases the danger and may make bikers uncomfortable, disincentivizing its use. This is why quality of infrastructure is important as well, such as separating bike lanes with more than just a painted line.

3.5 Social

INTRODUCTION

Ferndale, Washington is a small city of approximately 15,000 residents at the 2020 Census and covers approximately 7.15 square miles of land as of 2020. The city faces immense growth and is expected to nearly double in population within the coming 20 years. Western Washington University's 2024-2025 Urban Planning Studio is partnering with the City of Ferndale to assist in the city's Comprehensive Plan update, which focuses on growth and increasing density in various "neighborhood nodes" throughout the city. To begin creating our proposals for Ferndale's Comprehensive Plan update, we've created an analysis that lays out existing conditions of various aspects of the city. This section of the report focuses on the social aspect of Ferndale and includes demographics, physical and cultural assets, social services, and population growth projections. All these aspects of the city are intertwined with how land is being used in housing and the built environment, connectivity, the environment, and economic vitality.

DEMOGRAPHICS

As we begin to engage with communities in Ferndale, we must understand the makeup of the people that live in the area to ensure every group is represented in the public participation process. Additionally, our final proposal must contain aspects that reflect the interests of all members of the community. A general understanding of the characteristics of people living in an area gives us a launching point to learning more about the individual concerns of the population. Measures such as race, ethnicity, income, educational attainment, languages spoken, and age give us insight into the basic characteristics of Ferndale residents that then guides us through an in-depth analysis of the social and cultural conditions.

RACE & ETHNICITY

Race and ethnicity are base-level measures to understanding demographics and can lead us into an analysis of equity issues that are affecting populations. The 2020 U.S. Census estimates that Ferndale is made up of 74.5% White (not Hispanic or Latino) residents. The second-largest racial/ethnic group is Hispanic or Latino people, which make up an estimated 13.3% of the population, followed by people that identify with Two or More Races at approximately 7.4% of Ferndale residents. Asian residents make up approximately 7.1% of Ferndale's population.

Although American Indian/Alaska Native people make up only 1.7% of the population, Lummi Nation and the Nooksack Tribe are significant stakeholders in Ferndale and the surrounding area.

We know that Ferndale, Bellingham, and the surrounding areas have a racist and harmful history towards racial and ethnic minority groups. Forced dispossession of Indigenous lands, residential schools, racially restrictive covenants, riots and acts of terror towards Chinese and South Asian immigrants, and the rise of the KKK are only some examples of the harm that's been inflicted. As we attempt to address racial equity and justice issues in Ferndale today, the City of Ferndale and our studio group are taking incremental steps to repair centuries of wrongdoing. Given the historical relationships that racially marginalized groups have had with governing bodies (made up largely of White people), it may be difficult to gain trust and have strong relationships with racial minority communities in Ferndale. An emphasis on listening to community members and meeting them where they are will be incredibly important as we move through the process of identifying and addressing equity and justice issues taking place in Ferndale.

Over 25% of Ferndale's population is non-White, which was not reflected in the attendees at our first community engagement event. Taking care to engage specifically with Hispanic and Latino, Asian, and Indigenous populations is important now and as we move throughout the planning process. Some strategies for doing so include going to community centers, using culturally competent practices, providing resources and compensation for engagement, and ensuring our communications are accessible for all residents. Working with stakeholders from groups that specifically serve the populations we'd like to engage with will be vital during this process.

Figures 29-31 show the spatial distribution of White (not Hispanic or Latino), non-White (of various groups), and Hispanic or Latino residents in Ferndale. Spatial distribution can be used in conjunction with maps of property values, household income, health services, parks, grocery stores, etc. to understand what areas are underserved and the demographics of the underserved population. In general, the distribution of non-White and Hispanic

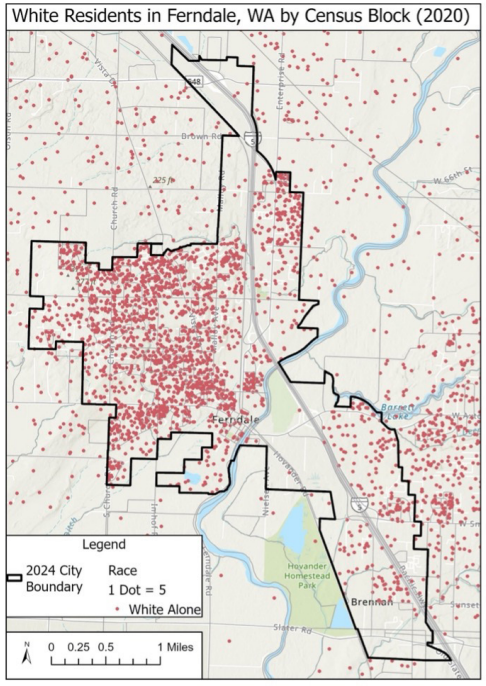


Figure 29. White Residents in Ferndale, WA

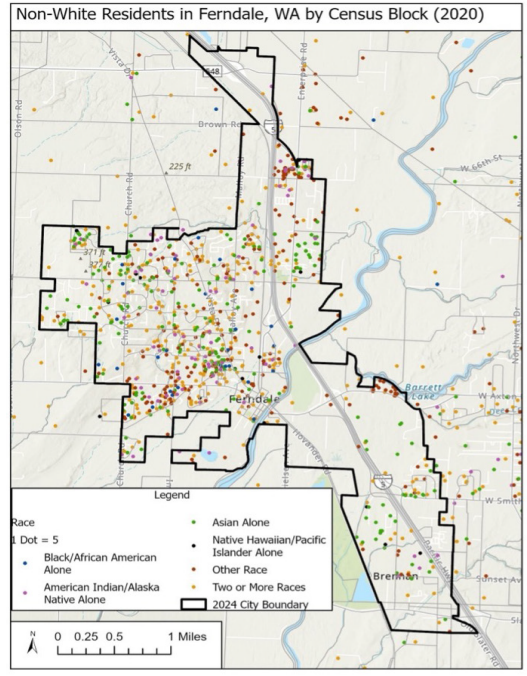


Figure 30. Non-White Residents in Ferndale, WA

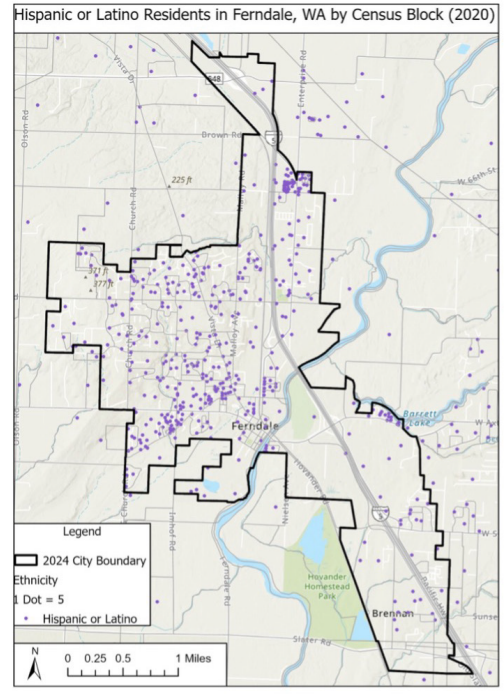


Figure 31 Hispanic or Latino Residents in Ferndale, WA

or Latino residents follows the distribution of White residents, without much clear separation. However, identifying small enclaves reveals embedded injustices in uneven distribution. Figure 31 reveals that the two places in Ferndale where Hispanic or Latino residents are clustered more densely are both on the east side of I-5 and both butt up against the city boundary.

Apart from Los Cabos Latin Mart and India Fiji Supermarket, which share a building on the northern portion of Portal Way, there are no grocery stores on the east side of the highway, which presents barriers for people living in these areas to access fresh and affordable food. There are also very few healthcare facilities on the eastern side of the highway (Figure 37) and no public schools (Figure 41). All of Ferndale's parks (Figure 42) are located west of I-5 as well. It's clear that places where Hispanic or Latino residents are clustered in Ferndale are also poorly served by vital facilities and services.

This uneven distribution can lead to negative health and wellness outcomes but also makes it difficult for these residents to access places they visit often or every day, such as stores and schools. This ties into accessibility, but also begs the question: Why are the most underserved areas in Ferndale also the places with the densest concentration of Hispanic or Latino residents and how can we address this as planners?

Income and homeownership are also directly correlated with race and ethnicity, and this is shown in the spatial distribution. For example,

the population of White and Hispanic or Latino residents both cluster near the northeastern edge of the city near the fork between Portal Way and Enterprise Road, making up the densest area east of I-5 within Ferndale city boundaries. According to the City of Ferndale's Tax Parcel Viewer, the subdivision in this corner was developed primarily within 2014 and 2018 with very few of the houses now existing in the area were present even 15 years ago. However, there is a very high concentration of Hispanic or Latino people, as well as people whose race was categorized "Other Race" across the street from this new development along Trigg Road (Figures 30 and 31). Further investigation revealed that the area contained a mobile home park. While homes in the newly built subdivision primarily made up of White residents have a taxable value upwards of $500,000, the few lots that are owned by their residents (who are primarily Hispanic or Latino) in the mobile home park have a tax value close to $50,000. This represents a greater problem taking place in Ferndale and across the country and is a part of intergenerational systems of wealth and poverty that primarily benefit White people and disadvantage BIPOC people.

AGE

In Ferndale, the way that people are distributed by their median age can help us understand where facilities should be located, as well as make estimates on what interests certain populations might have. One of the first observations one might make when looking at the map of median ages by census block in Ferndale (Figure 32) is that the areas outside the city limits tend to skew much older or much younger. The areas directly to the west of the city boundary have a median age between 56 and 90, whereas some areas to the southwest and northeast have median ages between 2 and 25 years. Within the city boundaries of Ferndale, nearly every census block has a median age between 26 and 45. This tells us that while the areas outside the city tend to have a higher median age, the blocks within city limits are largely people of working age.

The age of a population is an important measure to discover what needs residents might have and what factors might be affecting their lives. Older populations are often more concerned with accessibility as they face more mobility challenges than younger populations. Areas with a lower median age signify a high number of young adults, who are more likely to live with roommates and be low-income. Middle-aged people, those between 25 and 55, are more likely to have children.

Therefore, we can expect that childcare facilities and schools may be important where residents are middle-aged, whereas healthcare facilities may be more important where residents are older. However, it's valuable to locate resources such as community centers, parks, and libraries in central locations. Engaging populations from all age groups could present a key challenge in our public participation process. Older adult populations tend to engage most with cities during public participation opportunities. It can be challenging to hear from children and young adults, because of a lack of accessibility and resources to engage. We must make engagement accessible for all groups by locating engagement activities in central locations. Ensuring that we use commonly understood wording also increases accessibility. Visiting schools and youth organizations, as well as senior living communities and organizations could be valuable ways to reach these groups.

SPOKEN LANGUAGES

Understanding language diversity in Ferndale is essential for assessing social inclusion and equity within the community. Table 17 provides a breakdown of languages spoken at home, English proficiency levels, and a breakdown of age groups within each language. This data offers insights into the linguistic needs of non-English speaking residents, highlighting potential barriers they may face in accessing essential services, education, and community resources. The table reveals that of the Ferndale population aged 5 years and older, 84.7% speak only English, while 15.3% speak a language other than English. Spanish, other Indo-European languages, and Asian and Pacific Island languages are the most common non-English languages. Among the non-English speaking population, approximately 4.8% speak English less than "very well" with Spanish and Asian and Pacific Island language speakers facing particular challenges due to limited English proficienc . This indicates a need for multilingual resources, such as translated information and interpreters, to ensure equitable access to public services. For instance, public health messages, safety information, and community event announcements being made accessible in multiple languages.

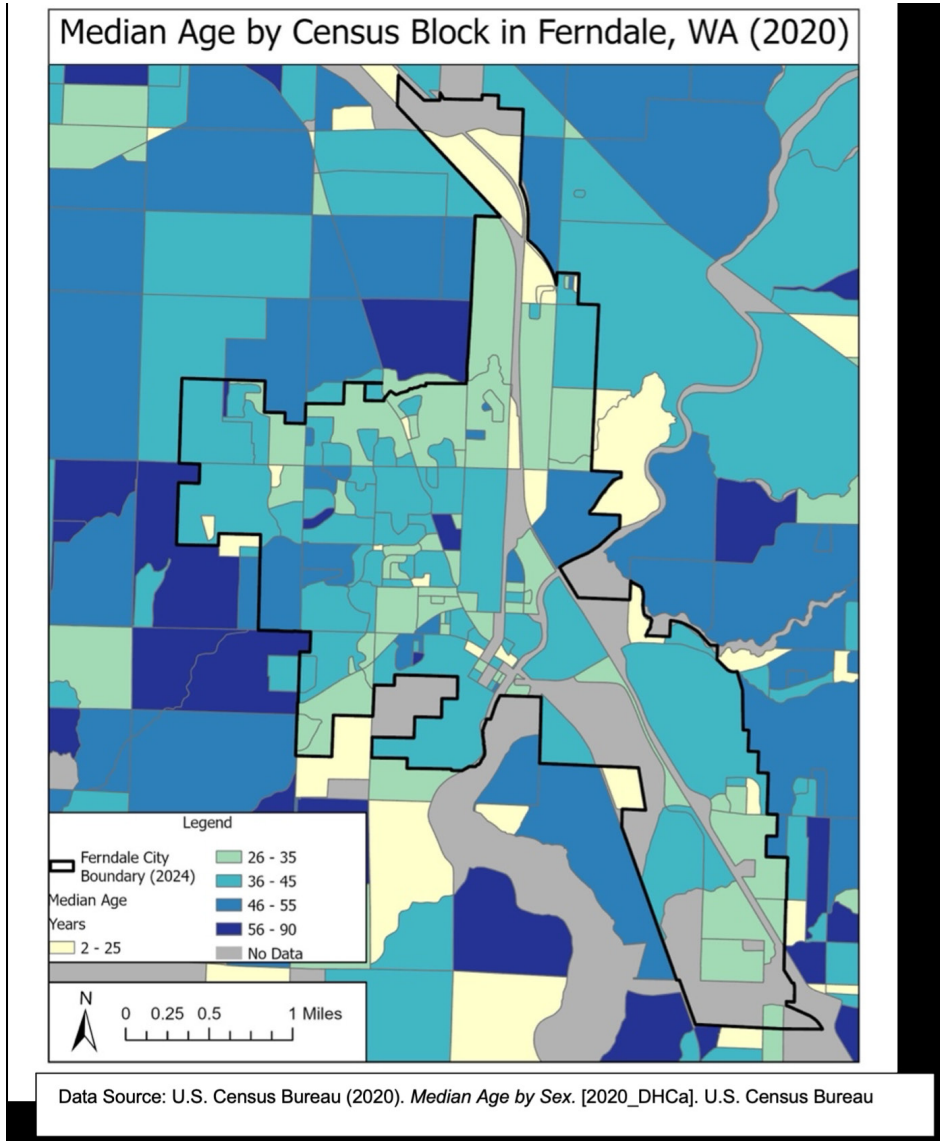
The presence of language barriers suggests that engagement efforts should be tailored to include non-English-speaking residents to foster inclusivity. Hosting multilingual public participation sessions, offering translation services, and reaching out to language-specific community organizations could increase participation among these groups. Language needs also vary by age group, younger residents might have more exposure to English, while older adults may rely more on their native languages. Addressing language accessibility will help us ensure that public facilities and services meet the needs of diverse residents as well as make sure the multicultural community in Ferndale feels included in decision-making.

INCOME & POVERTY

Income and socioeconomic status are used to determine factors that influence populations, such as food insecurity, unemployment, lack of accessibility, barriers to healthcare, etc. Income has a strong correlation with race and ethnicity. Systemic barriers put in place by the United States Government have prevented BIPOC people from gaining and accumulating wealth, and this issue has been exacerbated in the built environment through over policing, lack of services, disinvestment, etc. As we investigate uneven outcomes in income and poverty by racial groups, we must also identify the specific barriers that are being faced and what we (planners) can do to address both the issue of income inequality but also the outcomes that it produces.

To analyze the economic status of Ferndale's

Figure 32: Median Age Census Block in Ferndale, WA



population, we can start by looking at the median annual income of households in Ferndale. The median total household income for White households is nearly the same as the overall median of $92,775. Median income for American Indian and Alaska Native households and Asian households is $100,272 and $118,828 respectively. However, the median of Native Hawaiian and Pacific Islander households at $28,929. Native Hawaiian and Pacific Islanders make up only 0.4% of Ferndale's population, which is approximately 60 people, whereas the Asian population of Ferndale is upwards of 1000 people. Hispanic or Latino households make a median income of $73,185 annually, nearly $20,000 less than the median income of White populations. This mirrors the national disconnect between the median incomes of Hispanic or Latino and White populations. According to the 2020 Census, the US median household income for White (not Hispanic or Latino) people was $74,912, whereas the median household income for Hispanic people was $55,32.

The median household income of various racial and ethnic groups helps us calculate the percentage of people living below the federal poverty level (Table 19). These numbers can inform what groups are more likely to experience cost-burden for housing, food, healthcare, transportation, and other factors. In Ferndale, 5.70% of the White population lives below the poverty level, whereas a staggering 32.5% of American Indian and Alaska Native households live below the poverty level. 8.7% of Hispanic or Latino households are below the poverty level. Increased poverty levels for American Indian and Alaska Native and Hispanic or Latino households, like median income measures and uneven spatial distribution of racial and ethnic groups, are indicative of larger systemic issues. Earlier analysis tells us that primarily

	Total	Percent	Percent of specified language speakers			
Ferndale CCD, Whatcom County, Washington			Speak English only or speak English "very well"	Percent speak English only or speak English "very well"	Speak English less than "very well"	Percent speak English less than "very well"
Population 5 years and over	35,024	(X)	33,328	95.20%	1,696	4.80%
Speak only English	29,679	84.70%	(X)	(X)	(X)	(X)
Speak a language other than English	5,345	15.30%	3,649	68.30%	1,696	31.70%
SPEAK A LANGUAGE OTHER THAN ENGLISH						
Spanish	2,693	7.70%	1,839	68.30%	854	31.70%
5 to 17 years old	410	1.20%	410	100.00%	0	0.00%
18 to 64 years old	2,103	6.00%	1,316	62.60%	787	37.40%
65 years old and over	180	0.50%	113	62.80%	67	37.20%
Other Indo-European languages	2,002	5.70%	1,376	68.70%	626	31.30%
5 to 17 years old	324	0.90%	271	83.60%	53	16.40%
18 to 64 years old	1,264	3.60%	772	61.10%	492	38.90%
65 years old and over	414	1.20%	333	80.40%	81	19.60%
Asian and Pacific Island languages	465	1.30%	250	53.80%	215	46.20%
5 to 17 years old	29	0.10%	29	100.00%	0	0.00%
18 to 64 years old	340	1.00%	179	52.60%	161	47.40%
65 years old and over	96	0.30%	42	43.80%	54	56.30%
Other languages	185	0.50%	184	99.50%	1	0.50%
5 to 17 years old	28	0.10%	27	96.40%	1	3.60%
18 to 64 years old	152	0.40%	152	100.00%	0	0.00%
65 years old and over	5	0.00%	5	100.00%	0	0.00%

Table 17: Language spoken by age group
Data Source: U.S. Census Bureau. (2022). Language spoken at home (Table S1601). American Community Survey, ACS 5-Year Estimates Subject Tables

Hispanic or Latino areas of Ferndale have insufficient access to schools, parks, grocery stores, and healthcare facilities, as well as have significantly lower property values than nearby primarily White neighborhoods. Hispanic or Latino residents of Ferndale also have lower rates of educational attainment than their White counterparts. When we combine this information with our findings of lower median income and increased poverty rates, it's clear that Ferndale's Hispanic or Latino communities are facing inequities of all types, which feed into each other to further systems of oppression.

EMPLOYMENT

Labor force participation and employment rates are highest among residents aged 25 to 54, with rates of 82% to 87%, indicating strong workforce engagement within this core workforce population. In contrast, younger residents aged 16 to 19 years have a participation rate of 39.4% and an unemployment rate of 9.8%, suggesting that they might face challenges in finding employment due to limited work experience or availability of entry-level positions. Older adults, particularly those over 65, have very low labor force participation, with only 16.4% of residents aged 65 to 74 and 3.6% of those 75 and older actively participating in the workforce. This trend is likely influenced by retirement. For younger individuals, internships, apprenticeships, and part-time positions could provide valuable entry points into the workforce, while flexible job opportunities and less physically demanding roles could support older adults who wish to remain economically active.

Ferndale CCD, Whatcom County, Washington	Number	Percent Distribution	Median Income (dollars)
HOUSEHOLD INCOME BY RACE AND HISPANIC OR LATINO ORIGIN OF HOUSEHOLDER			
Households	12,677	12,677	92,775
One race--			
White	10,799	85.20%	91,128
Black or African American	61	0.50%	-
American Indian and Alaska Native	153	1.20%	100,272
Asian	477	3.80%	118,828
Native Hawaiian and Other Pacific Islander	16	0.10%	28,929
Some other race	588	4.60%	96,026
Two or more races	583	4.60%	87,182
Hispanic or Latino origin (of any race)	1,265	10.00%	73,185
White alone, not Hispanic or Latino	10,382	81.90%	93,963

Table 18: Household Income by Race and Hispanic or Latino Origin of Householder in Ferndale, Washington. Data Source: U.S. Census Bureau. (2022). Median income in the past 12 months (in 2022 inflation-adjusted dollars) (Table S1903). American Community Survey, ACS 5-Year Estimates Subject Tables.

White residents, who represent the largest demographic group, have a labor force participation rate of 60.5% and an employment rate of 57.9%. However, other racial groups exhibit varying rates of employment engagement and outcomes. For example, Black residents have a very high labor force participation and employment rate of 91.9%, with no reported unemployment, suggesting strong workforce engagement among this group. In contrast, American Indian and Alaska Native residents face a higher unemployment rate of 12.0% and a low labor force participation rate of 55.5%, potentially reflecting barriers to employment, such as limited job opportunities, educational disparities, or other social challenges.

Asian residents also show a moderate labor force participation rate of 69% and a low unemployment rate of 1.3%, but their employment outcomes still lag behind those of White residents. These disparities may indicate a need for increased access to employment resources to support equitable job opportunities across all racial groups.

Educational Attainment

Educational attainment, like poverty, is deeply intertwined with other socioeconomic markers. We are able to compare it against other measures to understand what barriers to education populations are facing. Income- which is highly correlated with race and ethnicity- can be

a major barrier to accessing higher education. Policy recommendations to address this issue could involve allocating financial aid or providing college preparatory services to populations that are disproportionately affected by barriers, especially Hispanic or Latino, Black, and Indigenous students.

Table 20 displays the rate of educational attainment for various racial and ethnic groups in Ferndale, WA. In Ferndale, 94.6% of the White (not Hispanic or Latino) population has attained at least a high school diploma, and 31.8% have attained a bachelor's degree or higher. For Hispanic or Latino people (the second-largest racial or ethnic group in Ferndale), however, only 76.9% of the population has attained a high school diploma or higher, and of these, only 13.5% have a bachelor's degree or higher. This alone shows the mismatch in the level of education that is attained by the White population versus the Hispanic or Latino population.

Spatial distribution, along with race, ethnicity, and income, can result in uneven outcomes in educational attainment. The map below shows the percentage of Ferndale residents with a high school education or less. It's notable that in two block groups near the north end of the city on opposite sides of I-5, between 41% and 60% of residents have not attained a level of education higher than high school. This could point to the lack of importance placed on education in areas where the economic base is primarily focused on agriculture or livestock. Figure 33 displays the percentages of population with an associate or bachelor's degree by census block group. Although most block groups fall into the same quantile (21-40%), the group directly in the center of the city near downtown Ferndale has a lower percentage of those with degrees, with only 0-20% of residents having attained an associate or bachelor's degree. Figures 29 and 30 (dot distribution of White and non-White residents, respectively) display that this block group contains the densest population in Ferndale of residents of all racial and ethnic groups. A larger sample size in this area likely contributes to the lower percentages of college-educated residents.

Ferndale CCD, Whatcom County, Washington			
RACE AND HISPANIC OR LATINO ORIGIN	Total	Below poverty level	Percent below poverty level
White alone	29,203	1,659	5.70%
Black or African American alone	241	11	4.60%
American Indian and Alaska Native alone	790	257	32.50%
Asian alone	2,223	87	3.90%
Native Hawaiian and Other Pacific Islander alone	65	2	3.10%
Some other race alone	1,969	248	12.60%
Two or more races	1,590	59	3.70%
Hispanic or Latino origin (of any race)	4,406	382	8.70%
White alone, not Hispanic or Latino	27,394	1,553	5.70%

Table 19: Percent below Poverty Level by Race and Hispanic or Latino in Ferndale, Washington
Data Source: U.S. Census Bureau. (2021) Poverty Status in the past 12 months (Table S1701), American Community Survey, ACS 5-Year Estimates Subject Tables.

Ferndale CCD, Whatcom County, Washington		
	Total	Percent
RACE AND HISPANIC OR LATINO ORIGIN BY EDUCATIONAL ATTAINMENT		
White alone	20,323	(X)
High school graduate or higher	19,239	94.70%
Bachelor's degree or higher	6,401	31.50%
White alone, not Hispanic or Latino	19,496	(X)
High school graduate or higher	18,449	94.60%
Bachelor's degree or higher	6,194	31.80%
Black alone	140	(X)
High school graduate or higher	138	98.60%
Bachelor's degree or higher	43	30.70%
American Indian or Alaska Native alone	268	(X)
High school graduate or higher	245	91.40%
Bachelor's degree or higher	65	24.30%
Asian alone	1,532	(X)
High school graduate or higher	1,085	70.80%
Bachelor's degree or higher	366	23.90%
Native Hawaiian and Other Pacific Islander alone	75	(X)
High school graduate or higher	60	80.00%
Bachelor's degree or higher	27	36.00%
Some other race alone	1,281	(X)
High school graduate or higher	882	68.90%
Bachelor's degree or higher	30	2.30%
Two or more races	1,131	(X)
High school graduate or higher	961	85.00%
Bachelor's degree or higher	270	23.90%
Hispanic or Latino Origin	2,622	(X)
High school graduate or higher	2,016	76.90%
Bachelor's degree or higher	353	13.50%

Table 20: Educational Attainment by Race
Data Source: U.S. Census Bureau. (2022) Educational Attainment (Table S1501), American Community Survey, ACS 5-Year Estimates Subject Tables. 5-Year Estimates Subject Tables.

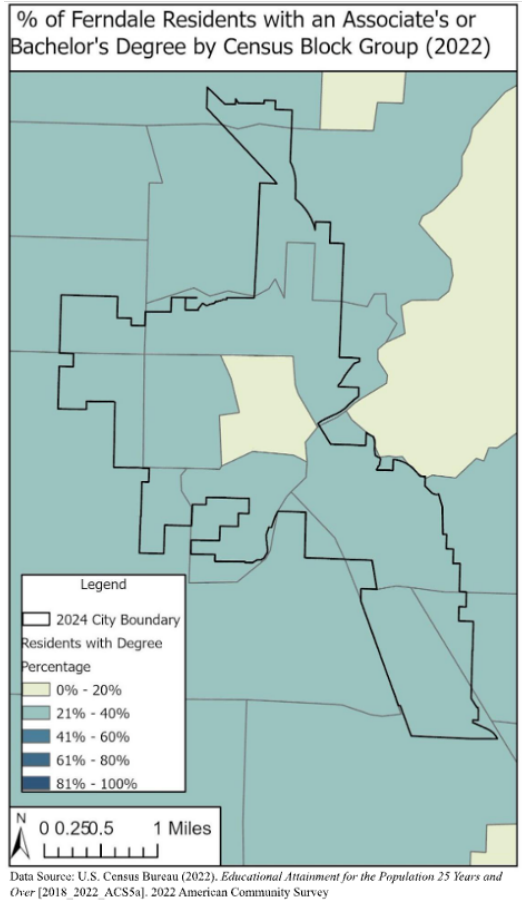


Figure 33: % Ferndale Residents with an Associate's or Bachelor's Defree by Census Block Group (2022)

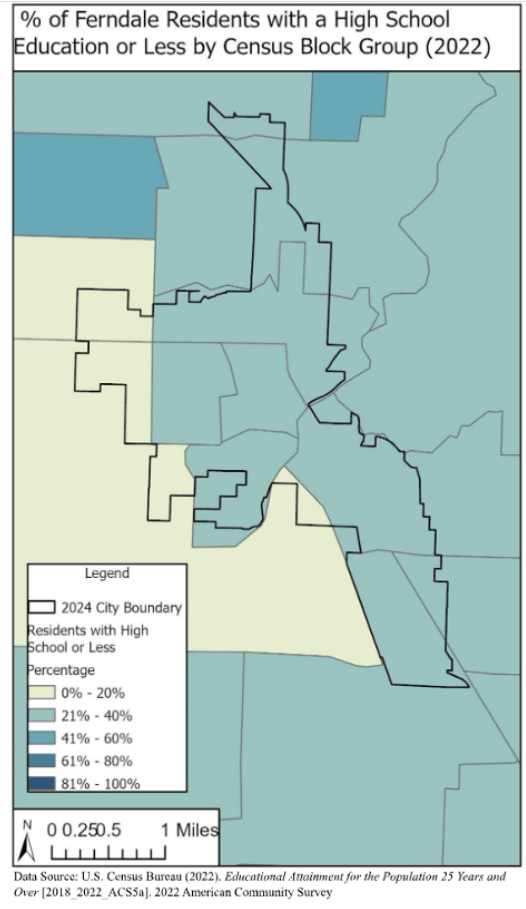


Figure 34: % Ferndale Residents with a High School Educatio or Less by Census Block Group (2022)

HOMEOWNERSHIP

Examining homeownership data by rate and ethnicity helps us understand disparities in housing access and economic stability among different demographic groups in Ferndale. Homeownership is a critical measure of economic security and community investment, but some racial and ethnic groups show significantly lower rates of ownership compared to others. Most occupied housing units (85.2%) are owned by White residents, who also have the highest rate of owner-occupied housing units at 85.7%. The high ownership rate reflects longstanding access to economic resources and housing opportunities. In contrast, Hispanic or Latino households represent 10% of all occupied housing units but only 6.6% of owner-occupied units. This gap suggests that Hispanic or Latino households might encounter barriers to homeownership, potentially due to income limitations or discrimination in lending and housing markets. Black or African American residents, who only make up 0.5% of occupied housing units, also show very low levels of homeownership at 0.5% of owner-occupied units. This data could reflect higher financial insecurity or historical obstacles to homeownership that still persist today. These disparities in homeownership rates suggest that while some groups have greater financial stability and ability to invest in the housing market, others remain more vulnerable to housing insecurity. Understanding and addressing these gaps is necessary because stable homeownership can bring long-term financial security to Ferndale's residents.

	Ferndale CCD, Whatcom County, Washington					
	Occupied housing units	Percent occupied housing units	Owner-occupied housing units	Percent owner-occupied housing units	Renter-occupied housing units	Percent renter-occupied housing units
Occupied housing units	12,677	N/A	9,889	N/A	2,788	N/A
RACE AND HISPANIC OR LATINO ORIGIN OF HOUSEHOLDER						
One race--						
White	10,799	85.20%	8,473	85.70%	2,326	83.40%
Black or African American	61	0.50%	51	0.50%	10	0.40%
American Indian and Alaska Native	153	1.20%	129	1.30%	24	0.90%
Asian	477	3.80%	442	4.50%	35	1.30%
Native Hawaiian and Other Pacific Islander	16	0.10%	15	0.20%	1	0.00%
Some other race	588	4.60%	425	4.30%	163	5.80%
Two or more races	583	4.60%	354	3.60%	229	8.20%
Hispanic or Latino origin	1,265	10.00%	655	6.60%	610	21.90%
White alone, not Hispanic or Latino	10,382	81.90%	8,348	84.40%	2,034	73.00%

Table 21: Homeownership rates by race and Hispanic or Latino origin in Ferndale, Washington
Data Source: U.S. Census Bureau. (2022). Demographic characteristics for occupied housing units (Table S2502). American Community Survey, ACS 5-Year Estimates Subject Tables.

Understanding household income distribution by age groups can help assess economic stability and identify the financial needs of residents at different life stages. Younger residents are more likely to be in entry-level positions with lower wages, middle aged residents typically experience their peak earning potential, while older residents may rely on fixed income and therefore have significantly less income than middle aged residents. Income disparities across age groups can affect housing affordability, access to essential services, and overall quality of life. Householders between 45 to 64 years' experience the highest median income at $127,302, suggesting this age group likely benefits from having established careers and are financially stable, allowing them to invest in homeownership. In contrast, householders 15 to 24 years have a median income of $55,625, while those 65 years and older have a median income of $64,447. These lower income levels indicate potential financial vulnerability and could be at risk for housing insecurity. This income gap may affect the ability of younger and older residents to afford rising housing costs, healthcare, and other services.

GROWTH PROJECTIONS

While Ferndale continues to experience steady population growth, surpassing 15,000 in recent years, shifts in social capital are likely to occur. It is partly driven by its proximity to Bellingham and the Canadian border. Additionally, Ferndale appeals to families and those seeking a smaller community with access to nature. These changes to the population will likely affect social capital by changing the town's historic character.
As well as giving opportunities for bringing Social Capital elements. As neighborhood density expands, to accommodate this possible population growth, the design of individual and community-public spaces will influence how people and other parts of our ecosystem interact. Graph 2 is a prediction of a possible population

projection for Ferndale, WA based on previous patterns found through Census Bureau Data. We can see what population growth looks like in terms of the percentage of the population that moved to Ferndale in that year and make projections to see the percentage of total new residents. In addition to looking at the total population projections, looking at age demographic projections can provide us with a more complete representation for the growth that Ferndale is projected to experience.

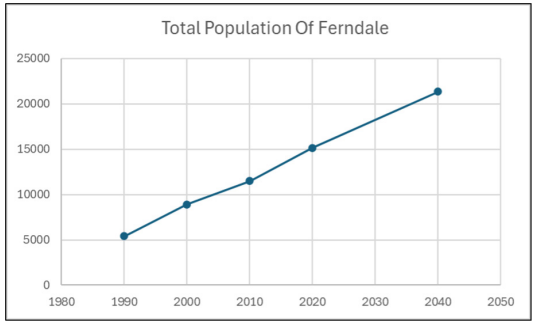


Figure 35: Total population projection of Ferndale, WA

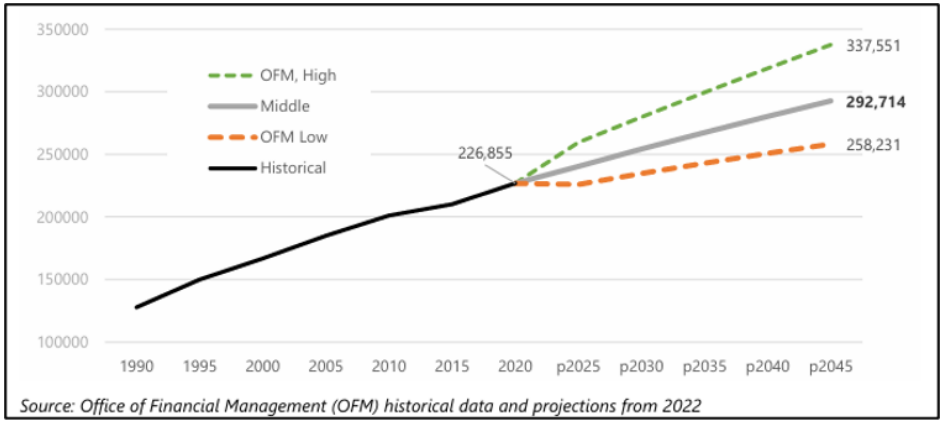


Figure 36:. Population projection possibilities

HEALTH & WELLBEING

In Ferndale, access to healthcare is the most prominent issue regarding the health and well-being of the population. Figure 31 displays the spatial distribution of healthcare facilities in Ferndale. There are three primary care practices in Ferndale, one of which is a nonprofit that focuses on affordable and accessible healthcare using their Sliding Fee Discount Program (Unity Care NW). These facilities are all located on the outskirts of Ferndale, which could present challenges for accessibility. Ferndale has six dentistry offices, most located within or near the downtown core. Chiropractic services, physical therapy clinics, and vision clinics are categorized as "Specialty Care". All of these facilities are located along Hovander Road/ Main Street, which crosses the Nooksack into the downtown corridor. In the far southern part of the city along I-5 is Cascade Connections, a nonprofit agency that provides services for people with developmental disabilities and their communities. Finally, Ferndale has three natural/ homeopathic medicine facilities.

The nearest hospital is PeaceHealth's St. Joseph Medical Center in Bellingham, which is a 15-minute drive from downtown Ferndale, but takes at least an hour by bus. This presents some obvious accessibility issues, even for those that own a car. The cost of healthcare is another barrier to obtaining suitable medical care. Table 22 displays the percentage and quantity of residents who are insured and uninsured in Ferndale by racial or ethnic background. According to the US Census Bureau, 95.2% of White Ferndale residents are insured, leaving only 4.8% of white residents uninsured. Only 86.7% of Hispanic or Latino residents are

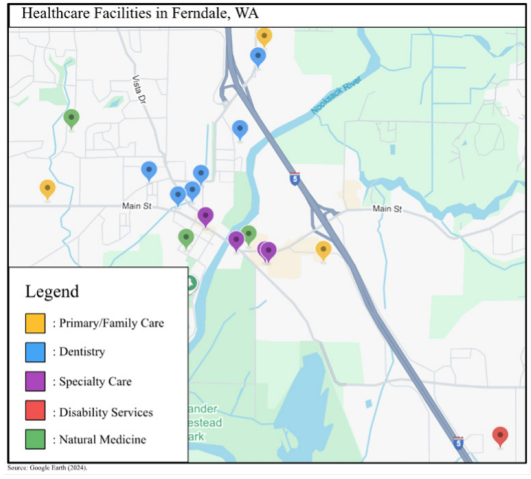


Figure 37: Healthcare Facilities in Ferndale, WA

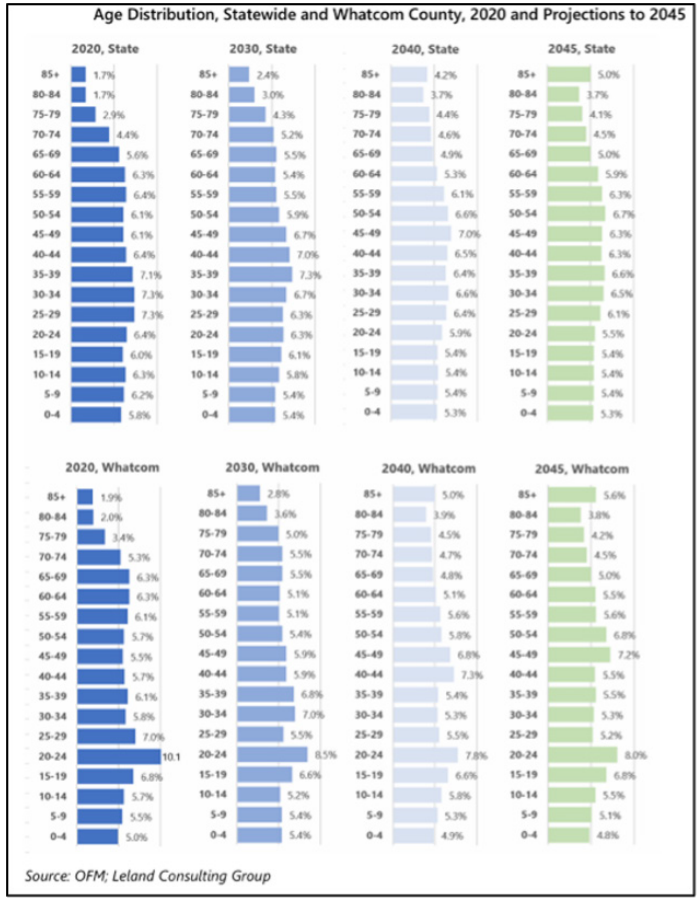


Figure 38: Age Distribution, Statewide & Whatcom County, 2020 & Projections to 2045

	Ferndale CCD, Whatcom County, Washington				
	Total	Insured	Percent Insured	Uninsured	Percent Uninsured
RACE AND HISPANIC OR LATINO ORIGIN					
White alone	28,949	27,562	95.20%	1,387	4.80%
Black or African American alone	335	321	95.80%	14	4.20%
American Indian and Alaska Native alone	522	489	93.70%	33	6.30%
Asian alone	2,237	2,082	93.10%	155	6.90%
Native Hawaiian and Other Pacific Islander alone	76	76	100.00%	0	0.00%
Some other race alone	2,063	1,763	85.50%	300	14.50%
Two or more races	2,849	2,403	84.30%	446	15.70%
Hispanic or Latino (of any race)	4,559	3,953	86.70%	606	13.30%
White alone, not Hispanic or Latino	27,526	26,184	95.10%	1,342	4.90%

Data Source: U.S. Census Bureau. (2022). *Selected characteristics of health insurance coverage in the United States (Table S2701).*

Table 22: Health Insured Population by Race and Hispanic or Latino origin in Ferndale, Washington

insured, leaving 13.3% uninsured. This alone is an important comparison as we see that there are nearly three times the portion of uninsured Hispanic or Latino residents as White residents in Ferndale. This indicates a need for increased accessibility to health insurance for Ferndale's Hispanic or Latino population, and could be achieved by partnerships with healthcare facilities, community-based organizations, Tribal nations, or government aid and outreach.

It's difficult to predict how the medical needs of the new population moving into Ferndale will affect the ability of healthcare providers in the region to adequately serve the population. However, anticipated population growth and current shortcomings in healthcare indicate that the City should plan for increasing the number of healthcare facilities, particularly urgent cares, in Ferndale.

ENVIRONMENTAL HEALTH RISKS

Environmental factors can have a significant impact on the health and well-being of a population. The Environmental Protection Agency's environmental justice screening tool, EJScreen, can help us determine if certain environmental factors are present in a population and how the impacts are distributed based on the demographic characteristics of the populations affected. Additionally, the State of Washington's Health Disparities mapping tool also helps us understand what possible risks are present in a community. The latter tool uses census tracts, whereas EJScreen uses block groups. Therefore, we largely used the EJScreen tool in our analysis because of Ferndale's relatively small population.

There are a variety of environmental factors that could impact populations in Ferndale. One of the most prominent is a high level of toxic chemical releases in the air in the block group between Ferndale proper and the Salish Sea. These chemicals are at levels in the 92nd percentile, levels undoubtedly connected to the presence of the Phillips 66 and BP Cherry Point refineries in that area. Another possibly dangerous pollution source runs directly through the city. Because much of the city's population lies near I-5, a major corridor, it's not surprising that the levels of diesel particulate matter are in the 50th percentile.

Another important risk comes with the population's proximity to a facility with a Risk Management Plan, or RMP. These facilities have protocols for dealing with a potential chemical accident and are at higher risk for such incidents to occur than non-RMP facilities. The block group directly to the north of Ferndale's city center is in the 91st percentile for this measure, and Ferndale's other block groups sit between the 80th and 89th percentile.

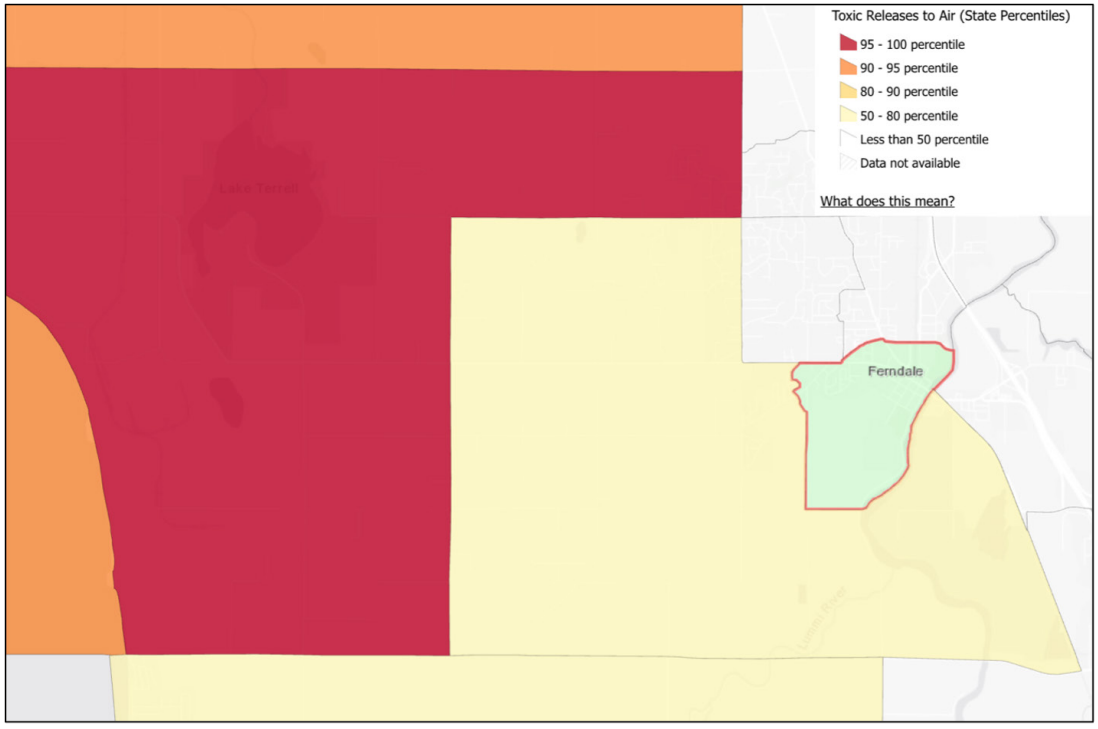


Figure 39: A map displaying state percentiles of toxic releases to air in and around Ferndale, WA
Data Source: Environmental Protection Agency. (2024). EJScreen. EPA.

In addition to possible chemical and toxin contamination, there are also risks relating to flooding and water quality in Ferndale. The area to the south and east of Ferndale's city center is in the 87th percentile for drinking water non-compliance, which signifies water systems that have had challenges complying with the Safe Drinking Water Act. As we know from our environmental analysis, much of Ferndale sits in a floodplain. Ferndale is in the 87th percentile for the percent of properties at flood risk, la gely due to low elevation and proximity to the Nooksack River. In addition, most of the southwestern and northeastern parts of the city along the Nooksack are in the 100-year floodplain, which presents

significant long-term risk

In Ferndale, low-income and ethnically diverse households are disproportionately concentrated in areas with higher environmental risks, inadequate infrastructure, and limited public resources. These neighborhoods are often located near industrial zones, such as the Phillips 66 and BP Cherry Point refineries, with high percentiles of toxic chemical releases. These environmental risks, combined with economic constraints, limit residents' ability to move to safer areas with better air q uality and fewer industrial hazards. Additionally, neighborhoods with higher concentrations of low-income households are the neighborhoods more likely to face significant flood risks and water qualit challenges, highlighting systemic vulnerabilities tied to their location. Gaps in service further exacerbate these inequities in Northern and Central neighborhoods, where low-income populations face may face inadequate broadband access (59th percentile), lack of health insurance (75th percentile) and high housing cost burdens (66th percentile). These gaps restrict access to essential services, education, and economic op portunities, perpetuating the cycle of poverty.

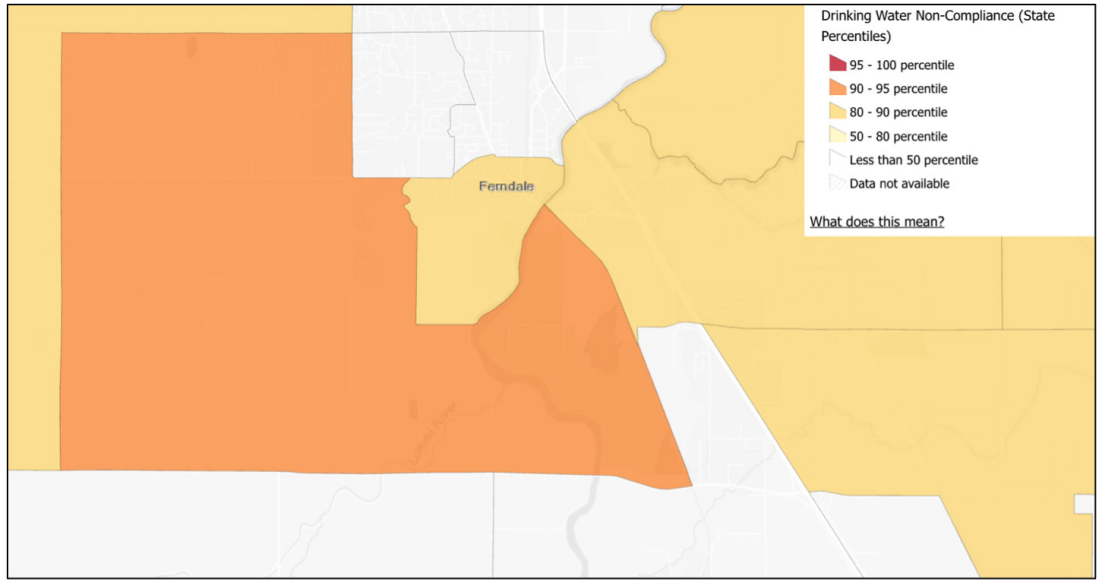


Figure 40: Map displaying state percentiles of drinking water non-compliance in and around Ferndale, WA Data Source: Environmental Protection Agency. (2024). EJScreen. EPA.

SOCIAL CAPITAL

Social services and community spaces make up where Ferndale community members interact with each other. Below is our look at physical places that have defined their use and resources in providing space for community members to come together. Currently, the main community centers and resource centers being; Pioneer Pavilion, The Boys and Girls Club, Ferndale Senior Center, Star Park, and Central Elementary School, are clustered together on Cherry St. which is located on the perimeters of the historical district/ downtown. Additionally, Ferndale Community Services, which is the main center for Social Services and resources, is three streets over. It is important to note that the majority of community spaces intended for people to gather in Ferndale are for-profit organizations; the pioneer center, for instance, costs upwards of $100 a day and a reservation to use. Many other social organizations in Ferndale do not have a set location for public use. For example, Connect Ferndale puts on many events for the community at various venues. All of the events and resources are targeted at bringing the community of Ferndale together.

Location	Type	Stakeholder	Contact Info
Ferndale Senior Center (Costs Money - Chamber of Commerce/ Senior Org.)	• Resources provided by Ferndale Community Services • Can be used for weddings, receptions, dances, performances, and meetings. • Maximum capacity of 50 guests	Senior Center Staff, Community Volunteers	Phone: (360) 384-6244
WECU (Community Branch) (Free - For Profit)	• Education center intended for public organizations to use the space for free • Maximum capacity of 114 people	Branch Manager, Event Coordinators	Phone: (800) 525-8703
Ferndale Events Center (Private - for Profit)	• Can be rented out and features several facilities and amenities including a banquet space with a dance floor	Event Coordinators, Local Vendors	Phone: (360) 734-7832
Community Empowerment Network (Free - Nonprofit)	• Helps rural communities acquire the skills, technology, and other resources they need to become more self-sufficient • Helps identify other resources and organizations address economic, environmental and personal needs	Robert Bortner (President)	Phone: (206) 329-6244

Ferndale Community Services (FCS) (Free - Nonprofit)	• Services provided include:
	  ○ Clothing and household items
	  ○ Hygiene supplies (Other Bank)
	  ○ Shower and laundry referrals
	  ○ Help with City of Ferndale water and sewer bills (Utility Fund)
	  ○ Computer and phone use
	  ○ Housing and job search
	  ○ And several others
	• Hosts public community events
		Web of Connected Community Organizations	Phone: 360-380-2200

Ferndale Food Bank (Free - Primarily donations)	• Free food for residents that can visit once a week with no identification required. • Located next to the WTA bus station	Staff, community volunteers	Phone: (360) 384-1506
Miracle Food Network (Free - Nonprofit)	• Makes food from restaurant food waste and then delivers food to people in need	Staff of community volunteers, Doug Robertson (President and grew up in Ferndale)	Phone: (360) 685 - 1013

EXISTING SOCIAL INFRASTRUCTURE

Table 23 shows current social spaces and programs that are already in Ferndale supporting community members. If we look into the stakeholders and financial contributors we can see how the majority of the community resources in Ferndale, specifically involving social services, are funded by non-profits and not by the government. This points to Ferndale community members already seeing the importance of social infrastructure and being invested in the success and wellbeing of all of their community members. While resources that are being funded by the chamber of commerce suggest that there are existing relationships in the government being involved with supporting the wellbeing and basic needs of its residents. As we continue to examine the social fabric of Ferndale, while the comprehensive plan is being updated, our analysis shows that community infrastructure is essential to include and expand on when considering future allocation of where resources will go.

Location	Type	Stakeholder	Contact Info
Whatcom County Health & Community Services Narcan Distribution (Free – Gov. funded)	• One of the few Narcan distribution resources in Ferndale	Volunteers, EMT's	Phone: (360) 778-6000

Whatcom Perinatal Mental Health Taskforce (Free - Nonprofit)	• Services available to assist any pregnant and parenting family with children up to age 5
	  ○ Includes resources for perinatal mood and anxiety disorders
	  ○ Helps families find the resources they need to address developmental and behavioral concerns in children
		Nationwide Organization	Phone: 1-888-404-7763.

SeaMar Community Health Center Maternity Support Services WIC/Nutrition Education (Free to all who qualify)	• WIC is a supplemental food and nutrition/breastfeeding education program that helps pregnant women, new mothers and young children gain access to nutritious food	Hyo-Na Han, (WIC Program Director)	Phone: (360)778-4214
Cascade Connections	• Empowers people with disabilities to enhance their quality of life. • Offers various residential, vocational, and training services that make independent living and employment more accessible	Scott Duffey (President)	Phone: 360-594-4216
Ferndale School District Ferndale Family Resource Center McKinney-Vento Program	• School-age children may qualify for certain rights and protections under the federal McKinney-Vento Act • Makes it possible to receive a free, appropriate public education and enroll in school immediately even if lacking documents and access other educational services according to needs	Kim Bunch McKinney- Vento Foster Care Kellie Larrabee- Executive Director of Teaching and Learning	Kim Bunch McKinney-Vento Foster Care Phone: 360.383.9432

Table 23: Existing Social Infrastructure (left & right)

Public Schools
The distribution of public schools in Ferndale, which includes elementary, middle, and high schools, is largely concentrated in the central area of the city with the exception of a few schools located further to the west (Figure 41). This central placement makes educational facilities accessible to many residents within core residential neighborhoods. The distribution of schools leaves peripheral neighborhoods with few education facilities accessible. Families in the peripheral areas may experience difficulties with public transportation and reduced opportunities to engage in afterschool activities and with nearby schools.

Library
The Ferndale Public Library, located centrally within the city near residential and commercial areas, is a valuable resource for the community. The library can provide access to educational materials, be used as a meeting space, and hosts various programs for residents of all ages. Its central location is convenient for residents living in nearby neighborhoods, but accessing the library from southern and northern neighborhoods can be more challenging.

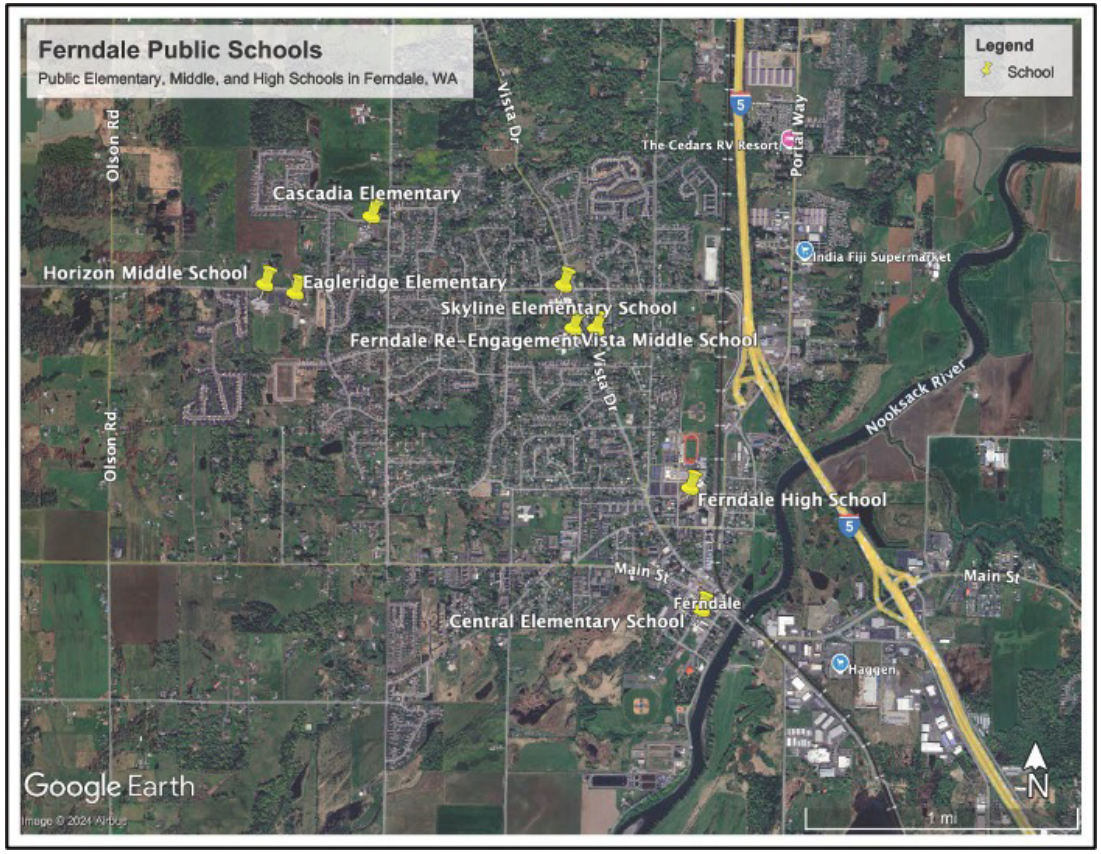


Figure 41: Ferndale Public Schools

Parks and Natural Resource Areas
Ferndale's park system is primarily concentrated in central neighborhoods, with a mix of community parks, neighborhood parks, public parks, regional parks, and special-use parks for different needs. The most prominent form of the park is the neighborhood park, which is mostly situated in the suburban residential areas on the outskirts of the city center. Parks like Vista Ridge Park, Oxford Park, and Horizon View Park serve the suburban neighborhoods, providing residents with accessible recreational spaces. The neighborhood parks in suburban areas primarily serve predominantly White families, while more diverse neighborhoods may rely on the larger community and regional parks rather than smaller, more intimate parks. The spatial distribution of these parks highlights inequities in access and environmental exposure. Parks play a key role in community well-being by providing spaces for recreation, social interaction, and mental health benefits. Ensuring that parks are accessible to diverse neighborhoods is essential for promoting equity and inclusion in urban environments. Accessible parks in diverse neighborhoods also contribute to public health by encouraging physical activity, Parks can

also serve as venues for community programs, cultural events, and public gatherings. Ensuring that parks are accessible to all neighborhoods can lead us to more inclusive and equitable communities.

Social and Cultural Values

When looking into what the Social and Cultural norms and resources are in Ferndale, questions about whose narratives are being amplified through various resources and events, and whose voices are being limited come to mind. For instance, when looking at what events are advertised and in part funded by the city. We can see how Western and colonial themes through historical reenactment events and the Whatcom Old Settlers Variety Show are taking place every year in Ferndale WA. (Old Settlers Variety Show | City of Ferndale, 2019). These cultural values contrast with what took place prior to colonial settlers.

Before Ferndale was called Ferndale the Nooksack River still ran through what is now the center of the city. Before Ferndale was considered Ferndale, from limited public historical sources, we can learn how this place was a juncture where the Lummi Nation, Nooksack Indian Tribe, and the Semiahmoo fished, hunted, and foraged. These tribes all have rich and unique ways of life that center around connection to their accustomed homelands. (Ferndale -- Thumbnail History, 2014) However, “in 1855, the Lummi Chief Chow-its-hoot, along with tribal leaders from over 20 Indigenous groups in the region, signed the Treaty of Point Elliott. The treaty forced

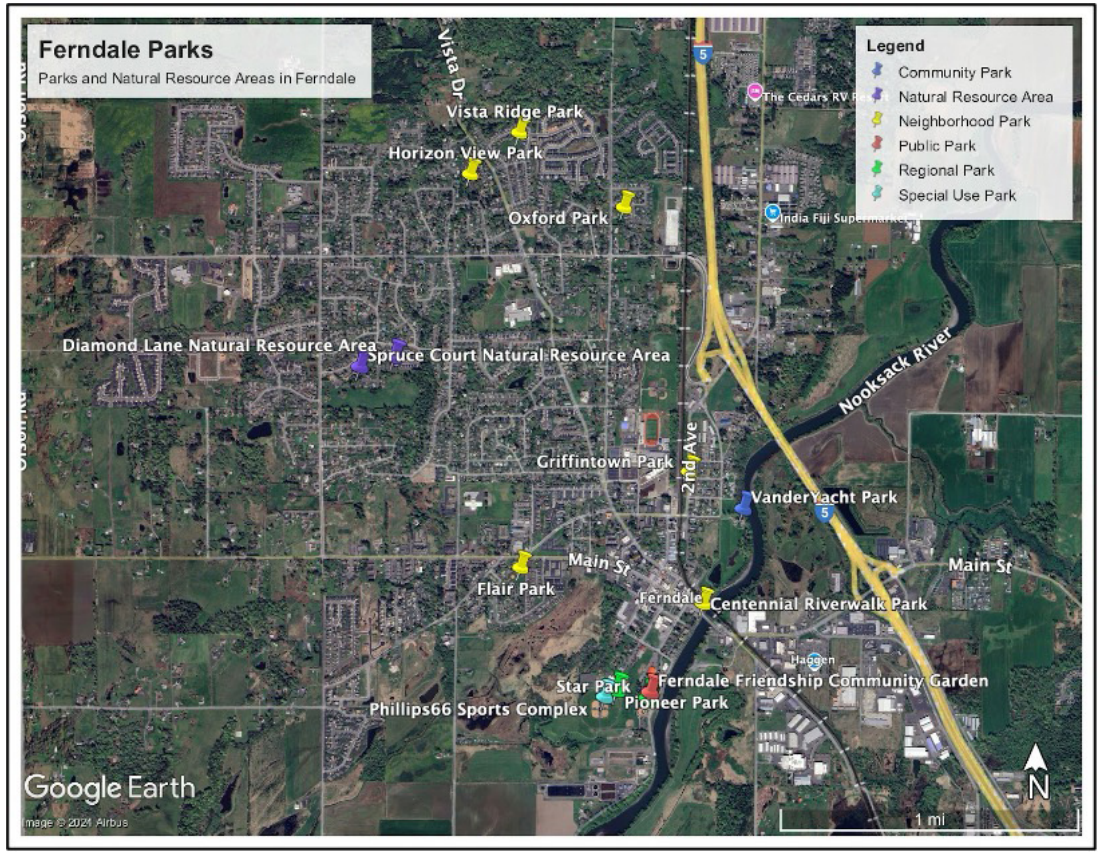


Figure 42: Ferndale Parks

the Lhaq’temish (Lummi) people from their ancestral land, including the area where the city of Ferndale is located, onto a reservation. The treaty also guaranteed fishing rights, which the United States and Washington State governments intentionally repressed until forced to change by the Boldt Decision in 1975. Additionally, Lhaq’temish children were separated from their families by the residential boarding school system that included the Lummi Residential School, the Stickney Home Mission School in Lynden, and the Catholic Mission Boarding School in Tulalip. We know that these actions- reservations, repression of fishing rights, and residential schools- were and continue to be state-sponsored actions of genocide against the Lhaq’temish people.” (Land Acknowledgement - Ferndale Community Services, 2024) These

actions taken by colonial settlers dramatically changed the social and cultural landscape of Ferndale WA. and the effects are still prevalent today with how the land is organized.
Moving forward as we get more involved with community members in Ferndale, our analysis of the Cultural Values, Norms, and Resources will largely come from first-hand accounts of interacting with Ferndale directly through events such as the studio planning kickoff event, Community Coalition meeting on Thursday the 21st. Survey responses from these interactions will help us gain perspectives from people currently a part of the Ferndale community regarding what resources they use the most, and what common cultural values are and how they are practiced.

INTERDEPENDANT ANALYSIS

Improving regional transportation infrastructure at the meso scale can significantly enhance the safety and accessibility of local streets at the micro scale, while also increasing economic access for underserved areas. Aligning local housing policies with federal affordable housing incentives can help alleviate regional cost of living, to help ensure that Ferndale remains an inclusive and affordable community.

	Economy	Infrastructure	Housing	Land Use	Environment
Micro (Local Scale)	Residents in underserved neighborhoods expressed a need for more accessible grocery stores, pharmacies, and community spaces that don't involve alcohol	Local infrastructure issues such as disconnected sidewalks, speeding concerns on Vista Drive, and dangerous school crossings are dangerous for pedestrians and cyclists	Community members favor housing typologies like cottage housing duplexes, as they align with the single-family home aesthetic while being more affordable	Lack of inadequate neighborhood commercial spaces creates inequalities as people without cars struggle to access basic needs	Floodplain management significantly impacts development potential, particularly in northern and central Ferndale which limits developable land for housing
Meso (Whatcom County)	Ferndale's depends on Bellingham for healthcare, retail, and employment opportunities	Short on and off-ramps, poorly designed roundabouts, and pedestrian-hostile areas limit safe multimodal access	The high cost of housing in Ferndale reflects regional market pressures, as seen in Bellingham	Ferndale residents rely heavily on county infrastructure to access Bellingham as a regional hub for employment, healthcare, and recreation	Floodplains in Ferndale connect to larger watershed systems like the Nooksack River which runs through a lot of Whatcom County
Macro (National Scale)	Federal policies on rural economic development and funding for small businesses could be leveraged to support expanding downtown businesses	National standards for transportation infrastructure, including federal funding, could address local safety issues	National housing policies, such as incentives for mixed-use development and affordable housing programs, can help Ferndale increase housing stock	Housing affordability and resistance to increased density reflect national trends of preferring single family homes	Increasing flood risks nationwide due to climate change echo the need for robust floodplain management and federal initiatives encouraging sustainable practices

Table 24: Interdependency Analysis

3.6 Environment

INTRODUCTION

Ferndale is a city in northwest Washington State, located along the Nooksack River. This urban analysis is intended to be an overview of some of the most important environmental topics within and surrounding the city of Ferndale, especially regarding development. In each element, this report provides a brief overview of key data and discussion of its implications, focusing on both the relevance to other environmental processes and the implications such findings have on residents of the city. This analysis is divided into four sections: current conditions, critical areas, flooding, and additional natural hazards. Each of these sections includes a synthesis of the data to find relevant trends and begin to develop overall recommendations. These recommendations will be laid out at the end of the document.

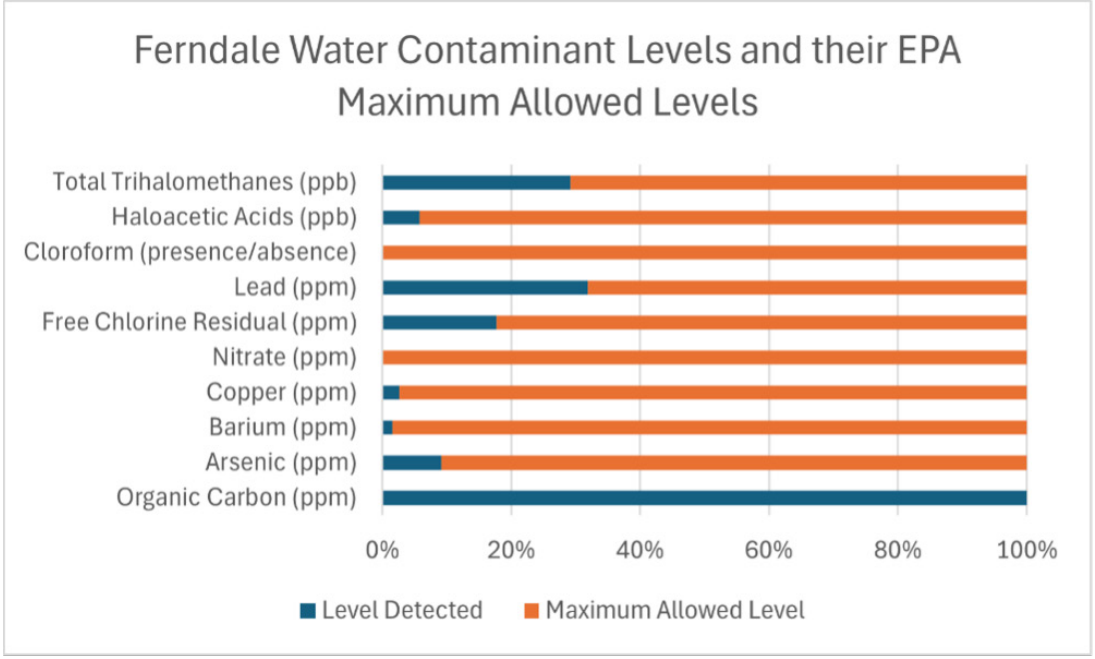


Figure 43: Ferndale Water Contaminant Levels and their EPA Maximum Allowed Levels

CURRENT CONDITIONS

The following section details the conditions of Ferndale, WA based on locational conditions in relation to climate, physical geography, and some human impacts. The combination of these scenarios creates unique impacts on people and the environment.

Soils

Soil type impacts plant growth, drainage ability (highly important in a flood prone area), and construction suitability. Generally, finer clays are more stable but have poorer drainage while coarser sands are the opposite (Agriculture Victoria, 2024). Most Ferndale soils are coarser and looser, and while this is a positive for flooding it increases liquefaction risk (USGS, 2021).

Water Quality

Drinking water quality in Ferndale meets all EPA regulations, making it safe to drink by federal government standards. Of the ten substances measured in 2023, all were under half of the required federal limit (excluding organic carbon, which the EPA sets no limit for, instead requiring a treatment technique intended to reduce its levels), shown in Figure 43.

Additionally, Ferndale has set city wide limit goals for six of these contaminants, those being arsenic, barium, nitrate, chlorine residual, lead, and coliform. Ferndale meets 4 of these 6 stricter goals, as shown in Table 25. While each of these contaminants are a result of natural or intentional water additive processes, they can cause health issues in high amounts and are important to minimize. Specificall , the city could look at reducing arsenic and lead levels, the two contaminants it is not in compliance with its own goals on. While arsenic would affect all tap water city wide, high lead levels are caused

by corroding pipes in specific homes. We and the city could both examine the built environment to determine where these pipes are and what solutions are available.

Although Ferndale drinking water meets all regulations, there is still some concern surrounding its quality, which was noticeably poorer in prior years. While the water has improved, its perception among many has not, leading to some to use filters or not trust in entirely. While sending out a yearly report shows the facts, more may need to be done to get residents to start trusting their water.

Aquifers

Two aquifers are located beneath Ferndale: the Vashon-Olympia Regional Aquifer, about 150 feet below ground level, and the Possession Whidbey Aquifer, just over 1,000 feet below. Drinking water has been collected from aquifers in the city since 2011, when the switch was made from Nooksack River water to guarantee an adequate supply and prevent rising and unpredictable costs. Water is currently collected from two wells pulling from the shallower Vashon-Olympia Aquifer, with one located just north of Main Street at the city's public works shop and another west of the city. This switch created new concerns over hardness and quantity; While the city installed a reverse osmosis system to reduce the hardness of the water in 2014, the quantity issue has been tougher to solve and is worsening every summer as climate change reduces availability (Lynden Tribune, 2018). To combat this, the city plans to construct a new well at the public works site that will pull from the deeper Possession Whidbey Aquifer (City of Ferndale).

Past concerns about the water may influence residents' opinions about it today. The high hardness of the water before the installation of the reverse osmosis system had the potential to damage home appliances, possibly hurting the public's ideas about water quality. Additionally, at least one city council member is concerned about public trust in the water, saying that she believes some residents may still not trust the water due to past issues.

Air Quality

According to the EPA's Toxics Release Inventory (TRI), Ferndale doesn't have any TRI facilities within the UGA, but multiple facilities outside of the UGA contribute to air emissions. The region's primary air pollutants include particulate matter (PM2.5), nitrogen oxides (NOx), sulfur dioxide (SO2), and volatile organic compounds (VOCs). Secondary pollutants like ozone form from chemical reactions in the atmosphere due to these emissions. Major outputting facilities include refineries, however Ferndale air pollutant levels in most residential areas are within a safe range. Even so, some residents still report concerns about the impact these refineries may have on their health.

Ethylene is an industrial chemical that, in high concentrations, causes headaches, dizziness, and respiratory irritation. Methanol is an alcohol that can lead to nausea, vomiting and blurred vision, and prolonged exposure damages the nervous system, High levels of ammonia exposure can potentially cause respiratory damage. Xylene exposure leads to headaches and confusion during short-term exposure, and damage to the nervous system in the long term. Toluene is found in solvents and can damage the kidneys and liver during long term exposure.

Noise Pollution

Noise pollution is primarily caused by three major forms of transportation in Ferndale: vehicle, train and air traffic. Vehicle noise pollution is the loudest in the areas surrounding Interstate 5, which runs northwestward through the eastern portion of the city. Additionally, every main arterial contributes to some degree of

Substance (Units)	Level Detected	Maximum Level Goal	Goal Compliance
Arsenic (ppm)	0.001	0	No
Barium (ppm)	0.032	2	Yes
Nitrate (ppm)	0	0	Yes
Free Chlorine Residual (ppm)	0.86	4	Yes
Lead (ppm)	0.007	0	No
Cloroform (presence/absence)	0	0	Yes

Table 25: Ferndale Water Contaminants Goals and Compliance

noise pollution.

These are primarily Main Street, Church Road and Vista Drive. The railroad line running along Hovander Road and through the heart of the city before turning north is also a major source of noise pollution. Interestingly, this was the most complained about transit noise at the kickoff event. Although infrequent, the trains are very loud for those living east of the freeway; this infrequency combined with intensity of noise likely makes them stand out the most in the ears of residents. Lastly, aviation produces the loudest noise pollution levels of any transportation type through planes taking off from Bellingham International Airport. The location of the airport south of the city means few residents are affected, though it has a large impact on noise levels along Slater Road.

While most of the city's residents are unaffected by these high noise pollution levels, those living in the south of the city, downtown and along the freeway may experience harmful health impacts.

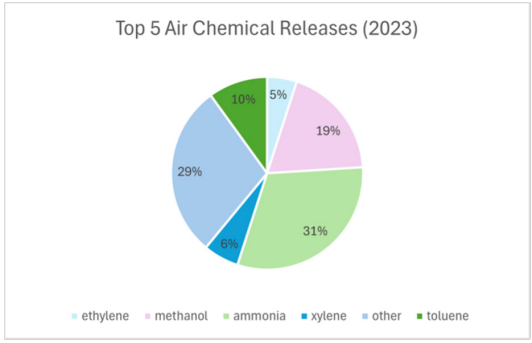


Figure 44: Top 5 Air Chemical Releases (2023)

Prolonged exposure to noise can contribute to irritability, hearing issues and trouble sleeping, and living in an area with high levels of noise pollution (average volumes over 65 decibels) can cause greater risks of heart issues and heart attacks (American College of Cardiology, 2022). While noise pollution is not currently an issue in the city's other urban growth areas, average volumes can reach around 65 decibels in the UGA off Slater Road, which is impacted by both road and airport noise. This data should also be discussed with the social group, as it is likely there are uneven impacts between demographics.

Emissions

There are eight sites in Whatcom County that actively contribute to greenhouse gas emissions. Five of these sites, including the Cherry Point Refiner , by far the largest emitter in the county, are situated directly east of Ferndale (EPA, 2024). Pollution from refineries such as Cherry Point has adverse health impacts on nearby communities around the globe, with increased rates of asthma, cancer, birth defects and blood disorders having been well documented. These rates are still raised in communities 10 or more miles away: with Ferndale being located 7 miles from Cherry Point, there is cause for concern (The Public Health Advocate, 2021). While the environmental, social and health concerns Surrounding these sites are clear, those living in Ferndale may not see them as a net negative. While many do have health concerns, others believe the economic benefits the refineries brin make them a net positive for the area.

Current Conditions Summary
While each of these conditions may seem unremarkable on their own, indistinguishable from any other city, they each have large implications for the environment in Ferndale and can explain larger trends, as well as impact other aspects of society. For example, the noise pollution map is not just a map of transit noise but also of transit pollution, major routes and non-developable areas. Although it may not look like it at first, ideas about land use patterns, economic value and business types, development and interest in housing, and social activities can begin to be inferred, and questions can begin to be developed through this single element. These elements also have the largest impacts on people's day to day lives and actions. An understanding of what conditions are of greatest concern to residents is a good first step to understanding what actions need to be taken.

CRITICAL AREAS & IMPACTFUL SPECIES

The following species are impacted by planning practices surrounding the Nooksack river and critical habitat areas more broadly around Whatcom County. The protection of critical areas and their species relates to preserving the maximum value of future development projects; trails and park proximity can increase home value, overlapping with the economic and social concerns.

Ferndale's ecosystems are home to several threatened and critical species, as well as invasive species that challenge native habitats. Threatened species like Chinook salmon, steelhead trout, and bull trout are essential to the health of the Nooksack River and depend on clean, cold water and healthy riparian zones. The marbled murrelet, a seabird, relies on nearby mature forests, while coho salmon and Pacific lamprey are also important for maintaining ecological balance.

Invasive species, including Scotch broom and Japanese knotweed, harm riparian areas and complicate restoration projects. Aquatic invaders like zebra and quagga mussels further threaten local ecosystems by competing with native species and requiring ongoing management efforts.

Designating critical areas in Ferndale is a tool used to preserve environmentally sensitive lands and direct sustainable development as Ferndale accommodates population growth. Ferndale has taken measures to protect critical areas through a combination of the Shoreline Management Program and The Critical Areas Ordinance. The city's Shoreline Management Program governs areas along waterways, emphasizing the protection of shorelines as valuable ecological and recreational resources. The Critical Areas Ordinance focuses on protecting wetlands and waterways, regulating development to protect water quality, prevent flooding, and maintain habitat.

FLOODING

Over the past 50 years, Ferndale, WA, has experienced significant flood events, wit urban flooding becoming more severe due to changes in land use and climate impacts. A notable incident occurred in November 2021, when the Nooksack River overflowed following intense rainfall linked to an atmospheric river. This event caused widespread inundation of neighborhoods, farmland, and infrastructure, displacing hundreds of residents and severely disrupting transportation networks. Flooding extended into key residential and commercial areas, exacerbating economic and environmental impacts. Events like this will become more common, and will most heavily impact road infrastructure (Firststreet, 2024).

The 20-year and 100-year flood zones in Ferndale overlap with urbanized and residential areas, presenting ongoing risks to property and safety. This 100-year flood zone is expected to become the 20-year flood zone within the coming decades.

Likely due to this serious and increasing risk, floods were by far the hazard residents were most concerned about. Some had personal stories of the last major flood in 2021: being isolated from the rest of the county, fearing the damage downtown, one school bus driver explained how a route to Lummi Island was unable to reach students for days, forcing them to miss school. In contrast, residents were either unsure or unconcerned about other hazards.

Road flooding during such events significantl disrupts resident commutes, as key transportation routes are often submerged or rendered impassable. For example, during the 2021

floods, several roads and highways were closed, isolating parts of the community and hindering emergency response efforts.

Ferndale is actively pursuing mitigation initiatives to address these challenges. The Ferndale Levee Project aims to bolster flood defenses along the Nooksack River, improving the city's resilience to flooding. Additional measures include the recent approval of levee updates, which currently protect over 400 properties (Firststreet, 2024). This project will involve rerouting Ferndale Road.

Land Use Impacts

Parks, agricultural uses, 100-year floodplain, and wetlands impact the potential flooding of the city. Areas that are designated green spaces or parks will decrease impact to residents, as they are optionable places to be. When considering development, housing and business development in these areas is a concern, as they have a higher risk of exposure to floods. Impervious surfaces are also increased by development, and increased surface runoff. Agriculture which has little groundwater penetration can be a concern for this as well. Ferndale is substantially limited in the development of certain areas based on its increased susceptibility to flooding. This limits the available land area for homes, and is an important consideration for equitable housing, as marginalized communities are more commonly impacted by hazards.

Stormwater

Peak rainfall in Ferndale occurs between November and January, with November peaking at an average of around 9 inches. Data from the National Weather Service indicates a 15% increase in precipitation during these months over the past 20 years, reflecting broader regional climate trends. These changes intensify pressure on existing stormwater infrastructure, with more frequent overflows and potential for downstream flooding.

Severe storm events have increased in both frequency and intensity, with rainfall totals from major storms often exceeding 2 inches in a 24-hour period. Notable impacts include the December 2021 storm, where over 3 inches of rain fell in two days, overwhelming stormwater systems and causing localized flooding in residential neighborhoods. Such events highlight the system's vulnerability to intense, short-duration rainfall.

Stormwater runoff in Ferndale's urban core carries pollutants like oil, heavy metals, and nutrients into nearby waterways. Elevated toxin levels can harm aquatic life in the Nooksack River, which serves as critical habitat for salmon. Urban runoff also contributes to algal blooms in

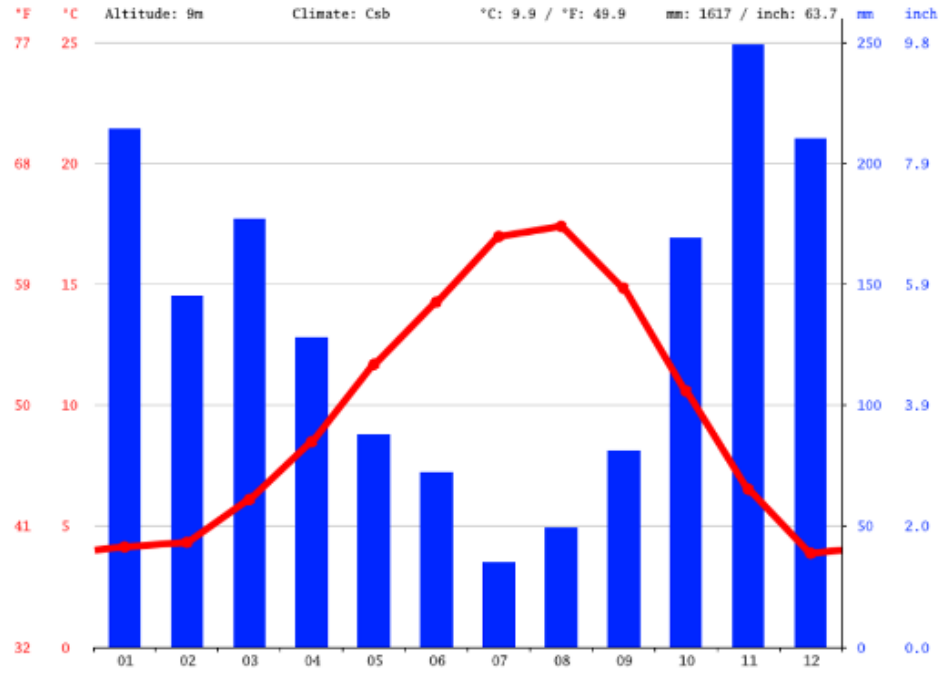


Figure 45: Average Monthly Rainfall & Temperature for Ferndale, WA

wetlands and waterways, exacerbating ecological stress.

Ferndale is already pursuing mitigation measures like green infrastructure, expanded detention ponds, and public education on reducing runoff. Recent projects include the installation of bioswales along Main Street and updated zoning codes requiring permeable surfaces in new developments. While these efforts are promising, more investment is needed to meet the challenges posed by increased storm events and urban growth.

Sea Level Rise

While sea level rise will not impact Ferndale directly through permanent inundation, raised water levels will increase the heights flood waters reach, and in turn the likelihood of major flood events occurring. If emission levels continue at their current rates, the corresponding level of sea level rise will result in today's 25-year flood occurring every decade from 2040 2060, and today's 100-year flood occurring every 25 years by 2080-2100. This makes development in and around the floodplain, where a majority of Ferndale's downtown is situated, all the riskier. Given that these increased risks could be seen in as little as 15 years, it is vital to consider them in this version of the comprehensive plan.

Flooding Summary

Flooding in Ferndale is not an entirely natural phenomenon; rather the city and its choices have a major impact on who, what, where and how flooding impacts are felt. Flooding is currently such a major issue due to past development choices. While the river brought many benefits, it now poses a threat to the center of the city in particular. Climate change and the sea level rise it brings with it is only going to exacerbate this threat. Just as Ferndale's development created these flooding issues, new development is the key to preventing them; new and improved mitigation techniques, such as improving runoff through green space and more impervious land uses, moving critical and frequently flooded facilities out of the floodplain upgrading transportation networks, and improving protections like the levy are just some of the ways Ferndale can and is tackling this problem. These solutions can only be developed successfully with an all-encompassing approach that takes each of the city's goals into account.

NATURAL HAZARDS

This section will present some of the hazards around Ferndale and the potential impacts they may have on the city.

Liquefaction

Liquefaction is triggered by an earthquake, when shaking causes susceptible ground to lose its strength and behave similarly to a liquid. This can cause extreme levels of damage to buildings sitting atop this unstable ground. Liquefaction is most likely to occur in areas composed of loosely packed, waterlogged sentiments (USGS, 2021). While most of Ferndale has a low to moderate liquefaction risk, areas in the floodplain including downtown are at high risk.

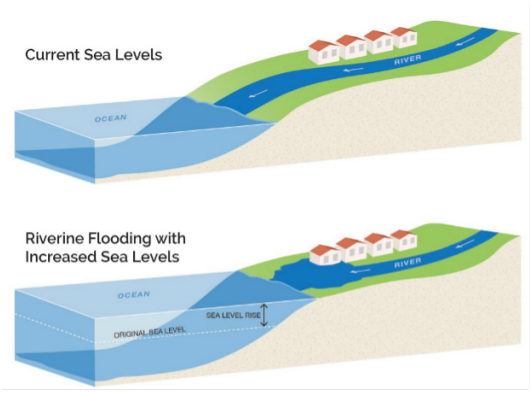


Fig. 46. Sea level rise will lead to worsened flooding on the Nooksack River (ESA, 2023).

Lahar

A lahar is a mixture of water and rock fragments that flows down the slopes of a volcano following an eruption. In Ferndale, a lahar would flow through the city following the eruption of Mount Baker, engulfing nearly all of the floodplain as well as most of downtown and some residential areas, destroying many of the buildings in its path (USGS, 2021). While it is very difficult to protect existing infrastructure from a lahar after it is built, well developed evacuation plans can prevent injury and loss of life. Interestingly, despite posing such a serious risk if it were to hit Ferndale, most residents were unaware a lahar risk was present or that such a hazard even existed, likely due to a lack of occurrences both nearby and globally.

Earthquakes

Earthquakes are the only hazard that pose a risk to the entire city, just like everywhere else

in Whatcom County and Western Washington. A strong seismic event on the Boulder Creek fault, which runs for just over ten miles around Maple Valley, could cause the most damage and strongest shaking of any earthquake in Ferndale, with the city experiencing strong (VI) shaking on the Modified Mercalli Intensity (MMI) scale (Whatcom County, 2021). An earthquake of this intensity has the potential to cause moderate damage to buildings that aren't well designed for its effects. Some of Ferndale's older areas, such as downtown and Griffintown, a neighborhood east of the high school, may be the most impacted.

Wildfi es

Wildfire risk in Ferndale is lo , though wildfire effects are being felt more as summer fires worsen. Like elsewhere in the Northwest, Ferndale will see increased smoke and a lowering of air quality as larger fires burn throughout the region. These effects will have disparate impacts: children, the elderly, and those with health conditions will be at greater risk, as will those who aren't able to stay inside to avoid poor or dangerous air. Another factor that may need to be considered in the future is the wildland urban interface, or locations where urban areas overlap with wildland; these locations have the greatest fire risk (Whatcom County, 2021). While it is currently unlikely fire reaches Ferndale directly, with climate change this is not an impossibility.

Implications: Section Summary

Even in a relatively small city such as Ferndale, hazards do not pose the same risk for everyone and everything. Geographically, downtown has the greatest level of risk: nearly every hazard converges in the downtown area, making it extremely vulnerable. Ferndale residents are also not equally vulnerable: a multitude of different groups, most often those who are disadvantaged in other aspects of society, are more vulnerable to hazard impacts. For example, those without a car or the ability to drive may have a much harder time getting to resources during a flood or other event. Poorer residents may not have as many resources to prepare for a hazard event and may live in areas that are at greater risk to begin with. It is important that the city at least considers these inequities when developing any new plan involving hazards. As the studio continues into the next quarter, anyone looking at environmental issues like these should also take research done by the social group into account. Finally, while we didn't discover any major risks associated with any urban growth area, the impacts of hazards on these areas should potentially be investigated further.

To highlight the intersectionality of the issues driving the environmental lense, thie matrix below has been used to overlay categories and emphasize how socioeconomic factors, policy and the existing infrastructure interact with and exacerbate environmental impacts on the citizens of Ferndale across spatial levels.

Table 26. Matrix of Other Studio Groups and Their Relationship with the Environment at Micro, Meso and Macro Scales.

Intersection with Environmental group	Land Use and Policy	Social	Economy	Infrastructure and Connectivity	Housing and the Built Environment
Micro	Homes with stormwater infrastructure face fewer property risks. Land use will transition towards pervious surfaces and green spaces in the unban core that lies within the floodplain.	Families use green spaces for recreation, improving mental and physical health. Low-income households face higher risks due to inadequate hazard preparation or recovery resources.	Flood damage increases household repair costs, impacting personal finances and commutes to jobs to participate in the economy. Green spaces enhance property values, benefiting homeowners financially. Families bear financial burdens from hazard-related damages.	Homes are isolated due to impassable roads during floods. Infrastructure like electricity and water are impacted by more frequent storm and flooding events.	Roads and Private Properties Flooding: Households face property damage and loss of habitable space due to flooding, which neighborhood zoning and housing construction standards will have to reflect.
Meso	Neighborhood zoning changes to accommodate stormwater requirements may displace residents as flood building regulations become more expensive. Major refineries will be regulated more strictly as Ferndales population expands and the impact grows.	Community events and cohesion flourish in well-maintained green spaces. Vulnerable neighborhoods often lack protective infrastructure, exacerbating hazard impacts.	Neighborhoods with frequent flooding experience reduced property values and economic stagnation. Communities with green spaces see increased local investment and business activity. Neighborhood businesses close or relocate, reducing local job opportunities.	Local roads and public transit are disrupted, affecting connectivity between neighborhoods. Neighborhood stormwater solutions improve road conditions and local connectivity.	Neighborhood capacities must be structured around stormwater mitigation capacities, managed retreat will impact neighborhoods within the flood plain; housing values and densities could increase in proximity to good parks and green spaces, as those areas may be in higher demand.
Macro	Currently Ferndales urban core lies within the floodplain; the layout of Ferndale will change to reflect the hazard map in the coming 50 to 100 years as land use is directed by flooding.	Social policies may emphasize green space development without addressing maintenance in underserved areas. City policies may prioritize wealthier districts for hazard mitigation investments.	Flooded roads disrupt supply chains and local business operations, reducing economic activity city-wide. Cities leverage green spaces for tourism and economic development. Economic losses from hazards ripple across urban and state economies.	Regional infrastructure planning often prioritizes commuter routes over local accessibility. Regional investments in stormwater infrastructure can reduce overall maintenance costs.	City-level policies may limit new development in flood-prone areas, exacerbating housing shortages.

4.0 Public Input

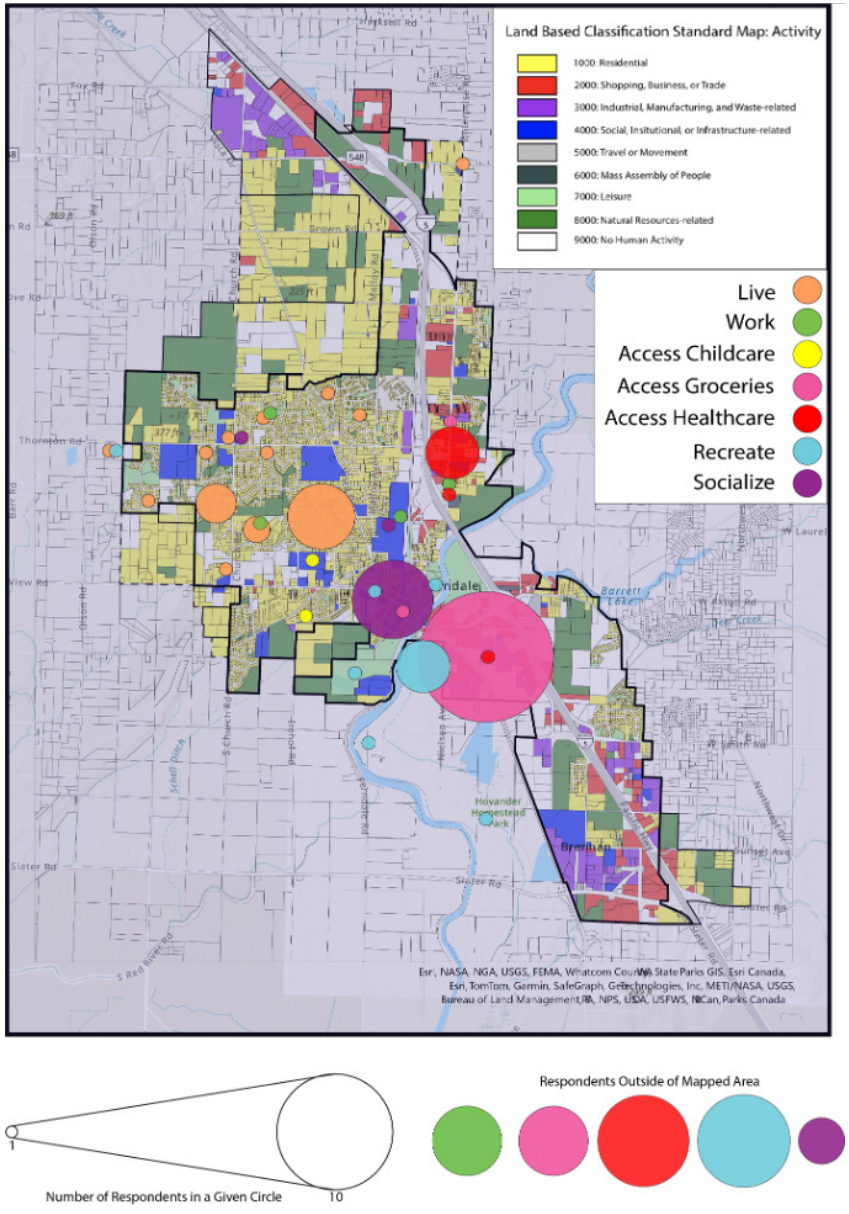


Figure 47: Land Based Classification Standard Map: Activity

COMMUNITY INPUT: FINDINGS

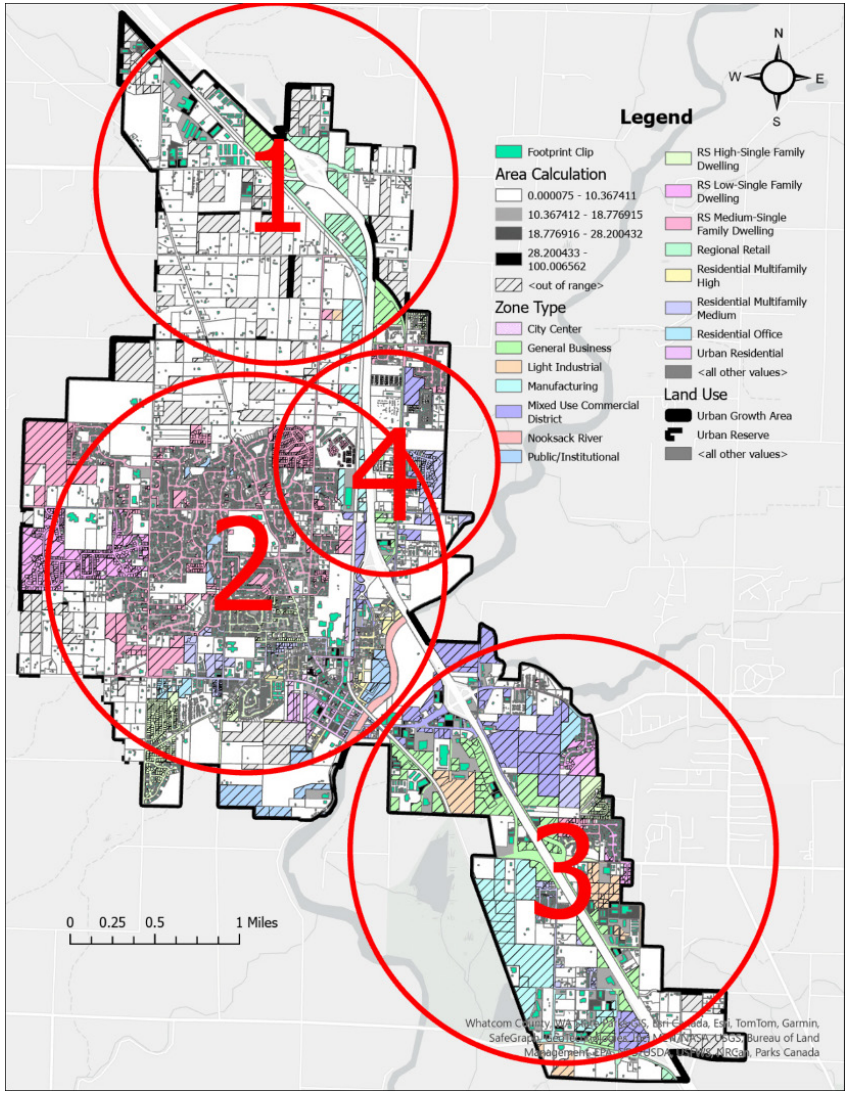
A community meeting was held on November 21 from 5-7pm at Pioneer Pavilion Community Center. Stations were set up with topics related to Fernbale's Comprehensive Plan. Attendees were encouraged to engage in activities at each station and provide their input.

The Land Use group provided two activities for participants to gather information. One activity consisted of a large map of Ferndale that residents would place interact with showing where they lived, worked, accessed childcare, accessed groceries, accessed healthcare, recreated and socialized. Participants would place dots on the map indicating where they were able to participate in these activities. The results of this activity are shown here. It became clear during the activity that many residents were not able to access many of the things listed on the map in Ferndale. A great deal of recreating, groceries, healthcare, and jobs were accessed outside of Ferndale primarily in Bellingham. This indicates a need for Ferndale to increase uses in city limits to ensure that residents do not need to travel far to access their needs. Another activity presented was a questionnaire that allowed for more detailed responses from participants. Unfortunately the aforementioned map activity filled much of the time participants spent at the station so responses on the questionnaire were limited but they mirrored the results of the map activity closely. Many residents relied on automobiles to access the

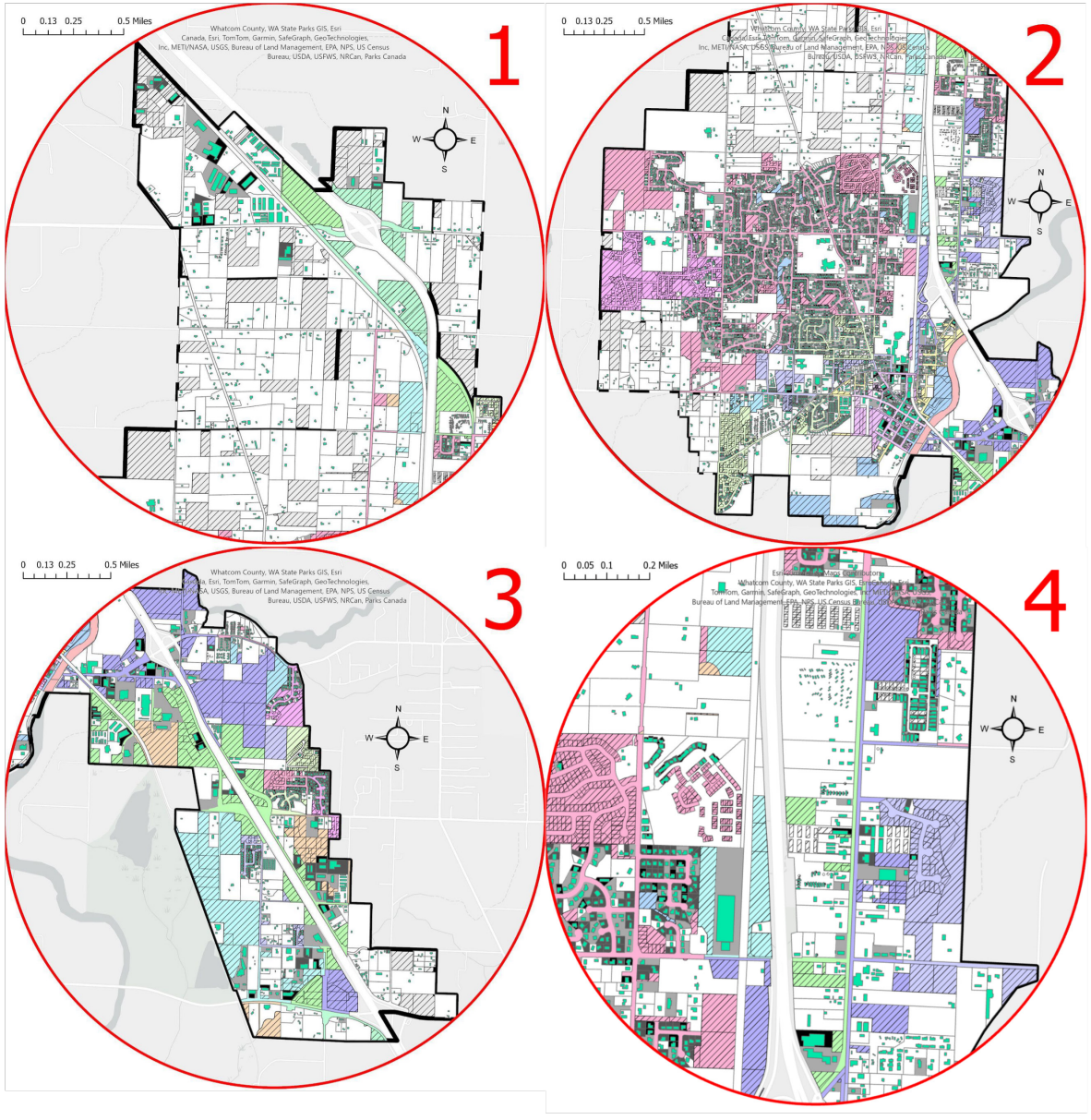
activities listed and were not able to fulfill all of the activities on the map in Ferndale city limits. Through talking with participants it became clear that many were concerned with Ferndale's increased population and how that would impact the look and feel of living in Ferndale. There were concerns centered around crime, traffic, and overcrowding indicating that careful implementations of increased housing is required to alleviate the concerns of residents. of people that would otherwise be missing in the formal public participation process.

Buildable Areas Map Analysis and Findings

The Buildable Areas Map analysis divides Ferndale into four nodes, highlighting areas of potential increased density and existing development. Node 1, primarily zoned for Regional Retail, shows high developable areas. Node 2 features various residential zones with medium to high developable areas, separated from commercial zones by I-5, and includes the Nooksack River (important consideration since buildable areas will be impacted by critical areas). Node 3 has high levels of developable areas, zoned for manufacturing, light industrial, commercial, and residential multifamily. Node 4, focused on Portal Way, is more densely developed west of I-5, but still offers development potential with less than 28% built out. It is important to exercise caution on the East side of I-5 since it is not very built out. Splitting the node around I-5 may create a struggle to maintain a cohesive mixed-use urban space.



(Above) Figure 48: Buildable Areas Map Node Overview.
(Right) Figure 49: Environment & Hazards Map Overviews



Environment and Hazards Findings

Attendees were presented with two qualitative questions and one quantitative question at the event, gauging the character and environmental experiences of Ferndale residents. Participants were asked to respond to qualitative questions 1 and 2 by writing a short response on a sticky note to stick onto the corresponding question poster, and respond to quantitative question 3 by tallying their category on a provided white board:

Question 1: How do you see your environment changing with an increase in housing development?

Question 2: What are some health concerns you have for yourself or others that are related to the environment?

Question 3: What hazards impact where you frequent? Tally for each; Floods, Tsunamis, Lahars, Liquefaction.

In response to the question 3 hazards survey, residents were overwhelmingly impacted by floods and liquefaction (7 and 6 tallies respectively), as opposed to only one or two impacted by lahars and tsunamis.

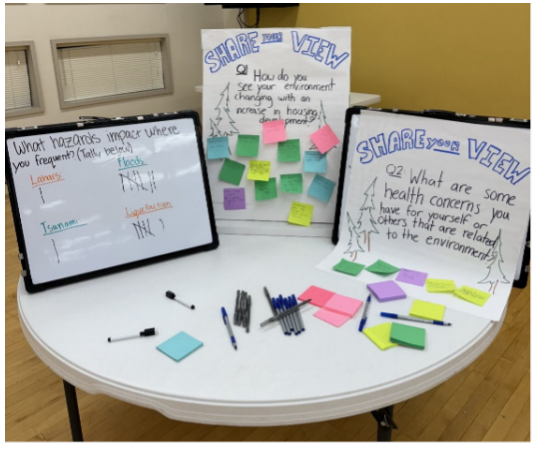
In response to the first and second questions, many community members expressed a strong desire for more green spaces and parks, particularly considering upcoming housing developments, with a

focus on maintaining tree cover and expanding trails. The increase in development was seen as leading to more traffic and crime, with a corresponding need for improved infrastructure and utilities to support growth. Concerns over the loss of green space and the exacerbation of runoff and flooding from impervious surfaces were raised, highlighting the need for enhanced stormwater systems, especially in older neighborhoods. In terms of health, pollution from refineries and industrial facilities, including train traffic and the Cherry Point facilit , was identified as a significant concern. Resident also expressed worry about the lack of riparian buffers to filter pollutants and protect wildlife, particularly fish populations in the Nooksack River.

Anecdotal conversations highlighted concern about the impacts of population growth, a general mistrust regarding city intervention, and a strong consensus about the need for better parks, trails and green spaces. Most conversations highlighted the importance of green space in the community: the topic was the most popular, discussed at a higher rate than other issues such as pollutant concerns or hazard mitigation.

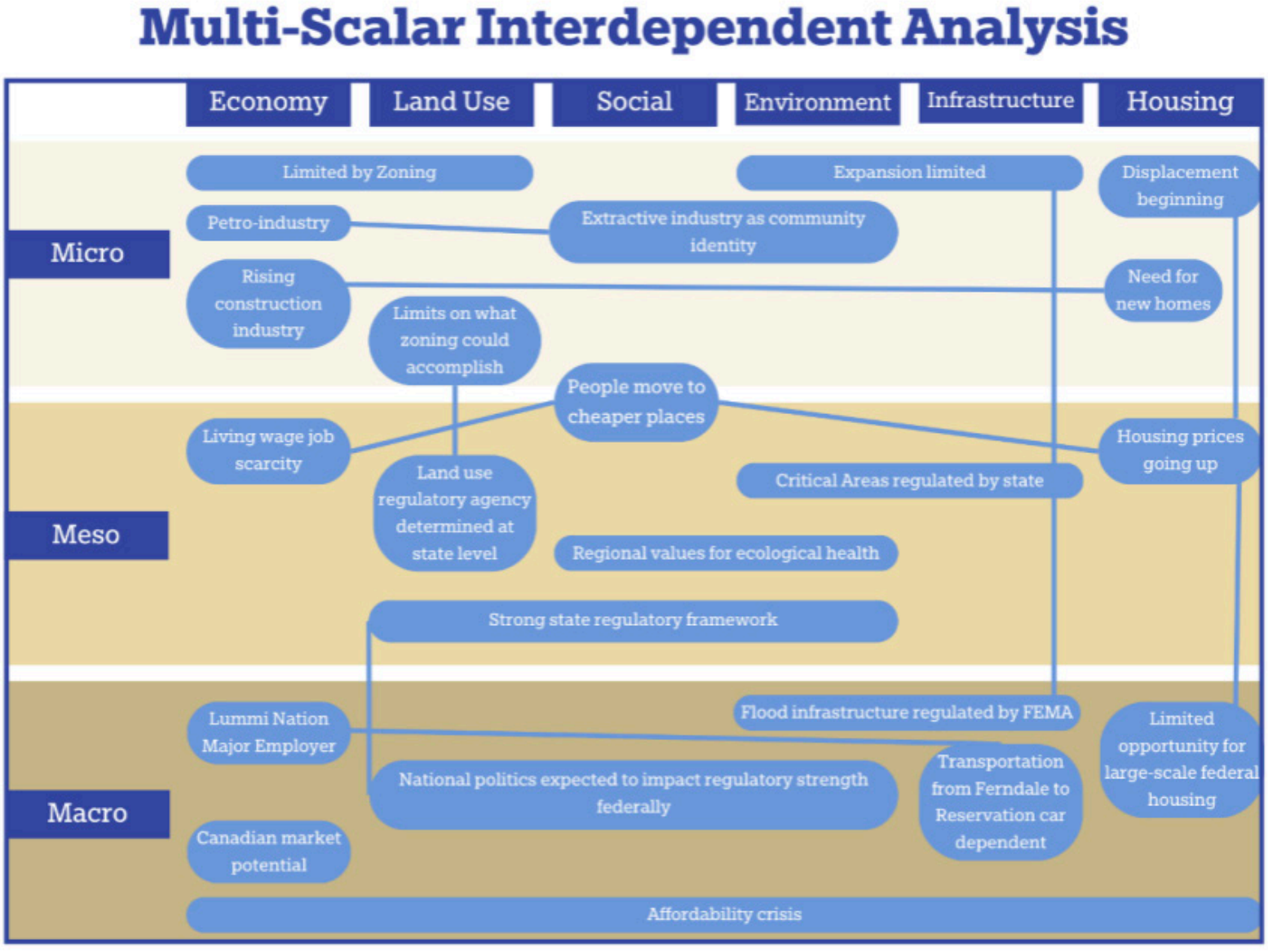
A future toolkit for engagement should include 4 dry-erase markers, sticky notes, pens, one whiteboard, with a quantitative question to take tally of and two standing posterboards with open-ended, qualitative questions. Based on feedback from the event, one of the qualitative questions should address parks and green space use. Keep a tally of the participants engaging with each activity and keep a notebook near to record notes from any conversations with community members; engaging in curious dialogue promotes trust and can be better used to gauge the character of the community.

The diagram of the Multi-Scalar Interdependent Analysis represents the interdependencies of all studio layers of analysis at the micro-, meso- , and macro-scale. We spoke with our studio peers about what aspects of our respective layers interact with one another, and this graphic represents only as many interdependencies as what fits in the matrix. The economic layer is very relevant to nearly every other layer, as the city's capacity to govern is highly dependent on economic factors. Further, this capacity is affected by its regulatory capacity and devolved responsibilities from higher jurisdictions such as the state and the nation.



Figures 50 & 51: Posters and Participatory Materials Used at Community Kickoff Event

5.0 Urban Analysis



The multi-scalar interdependent analysis matrix (left) represents the interdependencies of all studio layers of analysis at the micro-, meso-, and macro-scale. We spoke with our studio peers about what aspects of our respective layers interact with one another, and this graphic represents only as many interdependencies as what fits in the matrix. The economic layer is very relevant to nearly every other layer, as the city's capacity to govern is highly dependent on economic factors. Further, this capacity is affected by its regulatory capacity and devolved responsibilities from higher jurisdictions such as the state and the nation.

Figure 52: (left): Multi-Scalar Interdependent Analysis

5.1 Land Use

Indicator	Strengths	Needs	Opportunities	Gaps of Analysis
Middle Housing in Residential Zoning	Current zoning code allows for a wide range of middle housing types, city could maximize density by rezoning portions of the city to Residential Single Family High Density	Current residential zoning does not allow for the highest density possible in the city. There is a need for higher density in housing to fulfill the housing projections.	Ferndale could rezone portions of the Residential Zones to RSH or Residential Multifamily to allow for more missing middle housing. This would help the city reach their housing goals while also helping to create a more complete community.	Further environmental analysis would be needed to see if critical areas would be impacted with increased housing density. SEPA analysis and other environmental review would be required.
Commercial and Industrial Zoning	Ferndale's current zoning allows for many zones centered around economic development. Having these zones clustered around Interstate 5 can help expand economic activity by accommodating people from the north and south of Ferndale.	There is a need for more commercial spaces in residential zones in Ferndale. The residents at the Ferndale Community Meeting expressed a desire for a grocery store in their neighborhoods.	The city could rewrite the zoning code in RS zones to allow for more commercial uses so long as they didn't impact the surrounding uses too much. If the community identifies a need for a commercial use such as a grocery store then there should be steps that can be taken to allow for it.	n/a
Informality (Actual use vs Zoning)	Ferndale demonstrates strengths in fostering economic flexibility, social cohesion, and affordable housing solutions through residential businesses, informal housing arrangements, mixed-use patterns in commercial and industrial zones, and insurgent land uses, all of which adapt to community needs and address gaps in traditional zoning and municipal frameworks.	Ferndale raises concerns about health and safety risks from industrial-adjacent housing and increased congestion in residential zones, regulatory inconsistencies stemming from homeowners' associations and restrictive covenants, and the limited prevalence of informality, which reduces its broader impact on urbanization trends.	Ferndale has opportunities to formalize informal practices through zoning revisions that embrace mixed-use strategies and accessory dwelling units (ADUs), foster equitable growth via community-led zoning reforms that align with informal activities, and secure external funding, such as health equity and environmental justice grants, to address health risks and support sustainable urban development.	The evidence on informality in Ferndale, primarily derived from secondary sources such as mapping software, resident accounts, and discussions with planners, highlights the need for comprehensive primary research, including in-person observations, stakeholder interviews, and community surveys, to accurately assess the scope, motivations, and impacts of informal practices.
Development Patterns	Low density development located within city boundaries, downtown node convergence point, connectivity to other commercial opportunities through I-5	Lack of complete communities, subdivision and cul-de-sac development that reduces ease of transit, and modes of transit available, Lack of easily accessible commercial, social, and recreation services	Integrating variety of land uses in residential zones, use existing nodes created by development pattern to integrate more equitable access to healthcare and other services, utilize I-5 corridor for commercial opportunity	n/a

This analysis of Ferndale's zoning and land use reveals both strengths and opportunities for improvement. Current zoning allows for various housing types, with Residential Multifamily Zones supporting higher density compared to Single-Family Zones. However, the restrictive nature of Single-Family zoning, limits housing availability suggesting a need to adapt to code focused on affordable housing and densification. Community feedback highlights a desire for more cottage-style housing, which could meet local needs while enhancing the aesthetic appeal of neighborhoods. Additionally, there is a significant opportunity to address the lack of commercial spaces in residential areas, particularly in the northwest, through mixed-use developments that integrate essential services and amenities closer to residents.

Concerns regarding informal land use practices indicate a gap between actual and

Land Use Compatibility	Proximity to green spaces near the Nooksack River and central parks provides environmental and recreational benefits; the well-defined historic downtown supports economic vitality and pedestrian-friendly design; and mixed-use nodes in Urban Residential and Mixed-Use Commercial zones enhance walkability and integrate residential, retail, and services.	Disconnected green spaces limit equitable access to parks and ecological corridors; industrial zones near residential areas in the south create environmental concerns; infrastructure barriers like the Nooksack River, I-5, and the railroad reduce connectivity between zones; and the lack of key community land uses, such as grocery stores, urgent care facilities, and public community centers, forces residents to leave Ferndale for basic services.	Introducing missing community land uses through strategic zoning changes can address gaps in infrastructure; expanding and connecting green corridors can improve ecological and social outcomes; creating buffer zones between industrial and residential areas can reduce conflicts; and leveraging development in the Urban Growth Area (UGA) while conserving critical areas can balance growth and environmental preservation.	The analysis lacks detailed data on which demographics are most affected by inequitable access to green spaces, comprehensive studies quantifying environmental and health impacts of industrial-residential conflicts, and an economic feasibility assessment to support proposals for introducing missing community land uses like grocery stores and urgent care facilities.
UGA	Provides space to relieve anticipated population growth, UGA located at the nexus for several key arterials, offers space to redefine Ferndale's development pattern	Expansion may result in more sprawl and disjointedness, wetlands and critical areas in UGA, doesn't encourage transit mode choice or connectivity	Expansion to accommodate incoming housing spike, opportunity to develop mixed-use, high-quality areas	n/a
Available Land	Parcel size analysis shows that a lot of land is available when it is compared to actual building footprints, low-density downtown and commercial areas	Community input expressed preference for lower density, additionally not all open space may be accessible for use	Infill development kits, more widespread ADU and multifamily creation, increased commercial presence	n/a

Table 27: Land Use SWOT Analysis

permitted activities which could offer insight into areas of adaptation the city should consider. The proximity of outdoor activities to Ferndale and a well-defined commercial core are assets, yet disconnected parks and neighborhoods inhibit their use. Development patterns characterized by low density and limited public transit hinder connectivity and access to essential services. The Urban Growth Area (UGA) presents an opportunity for potential strategic development that balances environmental preservation with community needs, while available land analysis shows potential for further development in underutilized zones. Overall, analysis suggests that these key indicators could have a significant impact on maximizing utilization of land to meet identified needs.

5.2 Housing and Built Environment

STRENGTHS + ASSETS
Community Growth and Economic Potential – Ferndale has a strong economic base that supports its residents and attracts businesses.

Natural Environment and Open Space – Ferndale is surrounded by beautiful scenery, including Shukshan and the Nooksack River. Outside activities are accessible for residents of Ferndale to improve their emotional and physical wellbeing.

Community-Oriented Living – Ferndale has a small-town feel with a strong community spirit where local events, recreational spaces, and family friendly activities can flourish

NEEDS + CONCERNS
Infrastructure Gaps – While these fall closer to the infrastructure group, infrastructure will tie into the built environment as well. Lacking sidewalks, and access to public transportation facilities are both factors that may be optimal to improve upon.

Affordable Housing Shortage – Affordable housing is an issue nationwide currently, but access to affordable housing can lead to workplace retention and diversity within Ferndale.

Amenities – Some residential areas, particularly new developments, are distant from schools, parks, and community hubs, which may hinder community integration and convenience.

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NEEDS + CONCERNS
Affordable Housing Crisis – Again, affordable housing should be mentioned in this section because it is a very real threat to Whatcom County regarding displacing low-income and marginalized communities.

Competition with Bellingham and Border Towns – Neighboring cities like Bellingham offer more amenities and may attract potential Ferndale residents and businesses, limiting Ferndale's growth prospects. Improving upon affordability, and community organizing can help to prevent loss of economic value in Ferndale.

OPPORTUNITIES
Downtown Revitalization – There is potential to expand multi-family housing in the downtown area, enhancing accessibility and attracting a younger demographic seeking vibrant, walkable communities.

Nodes of Urban Growth – By focusing on particular areas in Ferndale, we can improve upon targeted communities, which will be more sustainable and doable than changing an entire city.

5.3 Economic

Indicator/ Category	Strengths/Assets	Needs/Concerns	Opportunities
Service Accessibility	-Some access to services already exists -Some grocery, good schools -Street infrastructure that provides primary connectivity	-Spatial concentration of services decreases accessibility -Only 2 grocery options -Lack of leisure spaces for youth/young adults -Lack of leisure spaces w/o alcohol -Lack of pedestrian/inter-modal	-Opportunity for unique new developments that increase social cohesion and attract shop
Stable employment	-Solid diversity of employment sectors -3 Large employers (Cherry Point, FPS, Lummi nation) -Large base in industrial jobs	-Over-dependence on BP Cherry Point for employment -Lack of entry-level jobs for young people -Outsiders see Ferndale economy as unremarkable, reduces desire to move to Ferndale	-Lots of available industrial space which could be renovated or reused -population growth brings opportunity to diversify economy
Competitive location	-Regional benefits, same access to nature Mt Baker, Pacific, San Juans, etc. -Proximity to I-5 -Proximity to Canada -Equidistant between Seattle and Vancouver BC -6+ million people within 100 miles	-Ferndale residents often do their shopping in Bellingham -Canadian tourism tend to favor Bellingham -Difficult establishing its own identity next to Bellingham -Still too far from Seattle to capture significant interest	-Opportunity to pull a ton of retail traffic from people travelling along I-5 -Ferndale is closer to the border, opportunity to redirect Canadian tourism to Ferndale

Table 28: Economic SWOT Analysis

Strengths, Needs, Opportunities Matrix and Analysis

Overview

Ferndale's economic strengths lie in its existing infrastructure, desirable location, and business-friendly local policies. When considering its scale and history, Ferndale is doing a fair job providing its residents with necessary services. Compared to national averages, the rate of employment, median household wage, and cost of living are adequate and stable for a city of its size. To put it concisely, Ferndale is good at being a small town.

Yet, as the city of Ferndale begins to see a rapid rise in population, it may very well lose its small-town status. If the city wants to reap the benefits of this population increase, it will have to be proactive in facilitating new developments. Fortunately, Ferndale has a number of strengths and opportunities which prove a path forward.

5.4 Infrastructure and Connectivity

TRAFFIC

STRENGTHS + ASSETS

Four Exits Located Along I-5

Commuters in the City of Ferndale have access to multiple exits throughout city boundaries to get where they want or need to go. There are four exits highlighted in Ferndale's Urban Growth Analysis (Exits 260, 262, 263 and 266) which allow residents to have multiple options to commute throughout the city. This helps increase accessibility and in turn can reduce congestion from an overload of individuals trying to exit in the same area. An ample number of exits can facilitate enhanced safer options for individuals in case of emergencies.

Park and Ride at the WTA Ferndale Station

The Park and Ride at the Washington Transportation (WTA) Station is a great resource for residents to utilize if they don't want to commute all the way to where they need to go. This resource helps alleviate congestion by transporting many residents who might have taken a private automobile to their destination (work, airport, store, etc.) The Park and Ride offers a convenient and sustainable option to commuters who reside in or around the city of Ferndale.

NEEDS + CONCERNS

Most of the needs and concerns of Ferndale are strengths that need to be expanded. There exists employment, but it needs to be expanded and diversified. There exists infrastructure, but it needs to be expanded to keep pace with Ferndale's growth. There exist some grocery stores, but not enough, and not well distributed. Overall, this is a good thing. Ferndale does not have any weaknesses that are outright deficits, only components that need to be expanded upon. What will be most important for Ferndale in the coming decades will be to create opportunities for new employment, to diversify its economy, and to create this change in an equitable manner.

OPPORTUNITIES

The opportunities for Ferndale are to build from its strengths and address gaps in the improvement of the quality of life for its residents and attract outside interest. Ferndale is well-positioned to capture retail traffic, tourism, and new businesses due to its strategic location near I-5, proximity to the Canadian border, and access to regional hubs such as Bellingham, Seattle, and Vancouver. The developable lands of the city, especially along Portal Way and around downtown, offer opportunities for mixed-use developments that promote walkability and social cohesion.

Ferndale can retain its small-town charm while updating its infrastructure to accommodate population growth. By densifying the downtown core, the city can create a vibrant, cohesive commercial and social hub. With a growing population comes the opportunity to diversify the economy, attract new industries, and increase employment opportunities, especially for youth and entry-level workers. Ferndale also has strong ties with the Lummi Nation and agricultural tourism assets that provide a unique cultural and economic foundation on which to build. Innovative policies, such as creating a creative district or live-work spaces, would go a long way toward further cementing Ferndale's status as a hub for entrepreneurs and businesses. The rerouting of Canadian tourism and improvements in retail might make the local economy even stronger. Given the spatial challenges and reinforcement of identity, Ferndale can turn its opportunities into sustainable growth and development.

NEEDS + CONCERNS

Roundabouts on Exit 263 Off Ramps Pose Safety and Congestion Concerns

At the Kick-off meeting many residents who attended voiced concerns regarding Exit 263 on I-5. Located directly off these on and off ramps going both north and southbound are two roundabouts which often cause serious congestion during peak traffic hours. Both roundabouts were intended to be temporary contractor roundabouts, but they have caused major controversy among residents with safety concerns. These roundabouts are too compact for traffic levels they experience daily and require a comprehensive plan to update these roundabouts.

Main Street Bears the Burden of the Majority of Traffi

Main Street is Ferndale's main road which is often susceptible to bad congestion or delays during peak traffic hours. This is due to there being minimal alternative routes which residents or commuters are accessible. This creates safety hazards for pedestrians and commuters.

OPPORTUNITIES
Exit 266 will connect well to the planned developments under the comprehensive plan and hopefully take some of the traffic burden o f exit 263 (or at least mitigate the increase in traffic) Commercial development along Portal Way.

STRENGTHS + ASSETS
Vista Road Goes through Planned New Residential Developments
Vista already exists to multiple destinations such as Skyline Elementary, Vista Middle School, and Ferndale High School. Vista connects suburbs downtown and is a major thoroughfare for traffic

Thorton Pedestrian Overpass
The Thorton Overpass offers a new level of connectivity for pedestrians who might have to cross the BNSF Railway tracts. This moderately new construction of an overpass has increased safety for pedestrians by providing them with a convenient walkway where they no longer must wait for trains to pass. Furthermore, the walkway connects areas that might've been more inconvenient or dangerous to get to without the overpass.

NEEDS + CONCERNS
Minimal Bus Services for Residents
The City of Ferndale only has two bus routes which residents can use. Route 75 travels along Portal Way, connecting Bellingham to Blaine. Route 27 loops through Ferndale's residential areas before returning to Bellingham. These routes are not efficient for those who would like to utilize the bus. If an individual would like to return to where they came from, they would have to ride the bus for the entirety of the route before they return to their original destination. This discourages many from utilizing the bus system.

CONNECTIVITY

NEEDS + CONCERNS
Lack of Sidewalk Connectivity
Many developments in Ferndale lack sidewalks and those that have sidewalks have poor connectivity to areas which would normally lead to city centers. As these new development plans come to fruition many of the development's plans include sidewalks, however, once an individual leaves the specific development they are in, many of the sidewalks which are incorporated end abruptly and discourage residents from walking further. Furthermore, many roads in Ferndale's suburban housing areas.

Lack of Safe Bike Lanes or Trails
The City of Ferndale has a serious lack of safe bike lanes around the city. During the Kick-off event many residents expressed concerns about the lack of even a basic bike lane to create separation for bikers and automobiles. Throughout Ferndale bicyclists are forced to bike on main roadways unless they are biking on Main Street, which has a very small portion of the road dedicated to a bike lane. However, Main Street is an extremely busy road and very unsafe for cyclists to ride on due to the high traffic volume which goes on that road dail . Throughout the city cyclists are put at serious risk of being hit and do not have alternative routes to access.

OPPORTUNITIES
Sidewalks
The City of Ferndale could work to add more sidewalks and/or work to connect old sidewalks to new ones.

Bike Trails
Ferndale could incorporate new bike lanes which are safe and effective with the roads they already have. Vista Drive would serve as a great area for bike lanes due to how wide the road is. Creating more bike lanes would help reduce congestion and provide safe alternative routes for cyclists.

Vista Drive
Complaints about how big the road is so people speed in a school zone and people want a bike lane on this road. These two issues could be consolidated into one solution! The existing roads where residential development is planned are somewhat in a grid layout already, which some people mentioned wanting as it will help traffic since there will be more roads connecting the neighborhoods to the rest of the city.

UTILITIES

STRENGTHS + ASSETS
City Owned Municipal Water
Ferndale used to purchase its water from the Public Utility District (PUD) of Whatcom County. The PUD used to pump water from the Nooksack River and was treated at its facility prior to 2011. The City of Ferndale switched to groundwater sources to avoid passing the PUD's increase in price onto its customers.

NEEDS + CONCERNS

High Cost of Water Utilities

The City of Ferndale gets its water from two wells currently. The two wells that are currently functional are the Douglas Well, which is located off Dougals Avenue and the Shop Well, located in the city's Public Works yard off Legoe Avenue. A new well is currently being drilled to help supply the City of Ferndale. The new well will be 1,000 feet deep and tap into a new aquifer. The two functional wells are more than 150 deep and pumped from the same aquifer, however, the new well will be substantially deeper and target a new aquifer. The water from the current wells is pumped directly to the city's water treatment plant.

Since Ferndale has purchased its water supply from the Public Utility District, it has become more difficult to maintain the volume of water which is needed. This is due to the aquifers not recharging at the expected rates. Furthermore, the aquifers become much more difficult to maintain during the summer months as the season becomes drier. This has placed a cost burden on residents who rely on Ferndale's groundwater despite the city's efforts to mitigate passing the PUD's increase in rates onto its customers.

Topic	Strengths	Needs	Opportunities
Traffic	Connection/ Proximity to I-5	Safer on-off ramps and pedestrian access near ramps. Larger/more controlled roundabouts	Surplus of connections to city within UGA
Connectivity	Vista Dr. Connectivity to destinations and developments Ferndale Station provides 2 bus routes to Ferndale	Additional safety needed for multi-modal transportation and traffic calming Ease of access from downtown Ferndale.	Wide lane widths and center turning lane give room to implement safety measures. Transit oriented development around station
Utilities	City owned municipal water	Affordable water. Water restrictions due to agricultural use from current aquifers	Deeper aquifer under city may provide additional water

Table 29: Infrastructure & Connectivity SWOT Analysis

5.5 Social

STRENGTHS + ASSETS

Youth and Families

Public schools can also serve as community spaces, and some residents highlighted the school system as a part of their community. Schools that can bring families together build social capital and increase the well-being of the community when intergenerational bonds are built, and knowledge is shared. The Ferndale School District also provides various community resources that can be built upon to create stronger communities. The "We Are Ferndale" blog highlights community groups, students, and teachers in the district. The district's committees and task forces such as the Early Learning Task Force and Safety Advisory Committee bring district officials, community members, and parents together to address issues of concern in the district. Ferndale School District also has a detailed catalogue of resources for families on their website, which includes early childhood education, nutrition, transportation, eviction protection and utility assistance, healthcare, and more. The broad reach of a school district (to every family with a child in K-12th grade) provides an opportunity for engagement, as well as community education and distribution of resources. From an economic perspective, the power of the school district to introduce levies means that it has potential to ***Strengths + Assets***

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Health and Wellbeing

Ferndale's park system, cultural resources, and basic needs services are all assets that benefit the health and wellbeing of the population. Healthcare facilities include three primary care practices in Ferndale, one of which is a nonprofit that focuses on affordable and accessible healthcare using their Sliding Fee Discount Program (Unity Care NW). Ferndale has six dentistry offices, chiropractic services, a physical therapy clinic, and a vision clinic. Cascade Connections provides services for people with developmental disabilities and their communities. Finally, Ferndale has three natural/homeopathic medicine facilities.

STRENGTHS + ASSETS

Cultural Resources

Indigenous cultural resources and teachings, especially those of the nearby Lummi Nation, are especially important in Ferndale and existing programs are an asset. There are some resources available through Ferndale Public Schools. Skyline Elementary, Eagleridge Elementary, Horizon Middle School, Vista Middle School, and Ferndale High School all offer Xwlemi Chosen (Lummi Language) courses, as well as Native American cultural, humanities, and leadership education. Cheskwin Club provides a community space for Native American students in Ferndale, and hosts events such as Native American Heritage Month Night. Tribal resources provided by the Lummi Nation through the Lummi Indian Business Council and Lhaq'temish Foundation are also important assets in the Ferndale area. The City of Ferndale should continue to nurture and uphold relationships and collaboration with the Lummi Nation and Nooksack Tribe as they move forward in the planning process.

Recreational Public Space

While conducting our Urban Analysis and speaking to residents at our kick-off engagement event, we found that many residents value the existing recreational spaces in Ferndale, particularly the parks and trails. Hovander Park, Pioneer Park, and VanderYacht Park were named by some residents we talked to. Parks are also valuable because the presence of a robust and utilized parks system is directly correlated with better physical and mental health outcomes for residents (Cohen et al., 2022). The park system in Ferndale can be used by planners to bring people together physically. It's also important to note that the popularity of Ferndale's parks might mean an increased investment or adage of services to parks could be a worthwhile investment. For example, a public indoor gathering space could be added to Hovander Park and host an after-school program for children.

The Ferndale branch of the Whatcom County Library System is open every day of the week and provides community spaces and free events. It hosts technology help sessions, book and community service clubs, youth programming for various age groups, musical performances, and outreach/educational events. This asset can be expanded upon based on the needs of the community. For example, the Ferndale Library might be a good place to host Spanish reading sessions for youth or Xwlemi Chosen (Lummi Language) classes for the community.

STRENGTHS + ASSETS

Basic Needs

The Community Resource Center is run by Ferndale Community Services and is home to a wide variety of basic needs services. The Community Utility Fund provides financial assistance for water/sewer bills to households that meet a threshold of financial need. The Other Bank provides free hygiene products, such as diapers, shampoo, toothpaste, etc. The Community Resource Center also has a staff person that can help individuals and families understand and navigate the resources available to them in times of crisis. Bridge 2 Services is a subsection of the Community Resource Center that focuses specifically on aid to unhoused people in Whatcom County, and provides camping and triage supplies, as well as connections to housing, healthcare, and recovery services. Finally, the Severe Weather Shelter operates out of the United Church of Ferndale and provides a warm, safe place for unhoused people to sleep during dangerous weather conditions. All of these resources create a strong base of community care and grassroots mutual aid efforts in and around Ferndale. They can be built on by providing increased funding and space for these efforts to operate. Ensuring the basic needs of Ferndale residents are met increases the wellbeing of the entire community.

There are also various nonprofits that provide similar services but are not specific to Ferndale, such as Opportunity Council, LAW Advocates and the Northwest Justice Project, and the Whatcom Dispute Resolution Center. Northwest Youth Services and the Washington Homeowner Assistance Fund are also valuable resources available to Ferndale residents. All this is to say that there seems to be a strong existing network of social and financial assistance services in Ferndale, which is an asset to the community and can be built upon as Ferndale grows.

The Ferndale Food Bank, which uses some food from Ferndale's Community Garden, is available to families, who can take up to 70 lbs. of food/week. The Free and Reduced Lunch program, which is utilized by 43.8% of students (US News, 2022), ensures that Ferndale Public School students who qualify have access to nutritious meals.

STRENGTHS + ASSETS

Safety and Accessibility

Transportation networks go together with safety concerns. Pedestrian and cyclist safety, car accident rates, convenience and safety around bus networks and stops are all examples of this connection. Community members at our first engagement event told us that they loved the trail system and pedestrian infrastructure in Ferndale. Some residents highlighted cyclist infrastructure, saying they enjoy biking downtown on bike lanes or on the shoulder of Portal Way and/or Vista Drive. There are bike lanes and sidewalks throughout the downtown corridor. There is one WTA route that goes around Ferndale and to Bellingham (Route 27), and one that goes from Bellingham to Blaine, with stops in Ferndale (Route 75). For emergency safety, there are 6 fire stations and 1 police station in the Ferndale area, which adequately serve the surrounding area.

Diversity and Equity
Ferndale is the most ethnically diverse city in Whatcom County, with a sizable Latino/Hispanic population (13.3%) and Asian population (7.1%). The city's proximity to the Lummi Nation is also incredibly significant, although American Indian/Alaska Native residents do not make up a significant portion of the population of Ferndale proper. Ferndale's diversity is an asset to the city, and diversity of backgrounds and lived experiences can only make communities stronger as they share cultural knowledge and develop a vision for the future.

OPPORTUNITIES
Focusing on the current context of what is happening in Ferndale, we can see assets that can be strengthened to further social networks and services in communities. The following recommendations came from our social analyses and community kickoff meeting findings. All our recommendations are not a prescription for what will work best in Ferndale, but resources to help develop infrastructure in collaboration with the community of Ferndale, in hopes of creating tangible change to rather intangible concepts of human connection and services.

NEEDS + CONCERNS
Recreational and Community Spaces
The lack of public recreational facilities and community spaces has led to a significant demand for a public pool and off-leash dog park among residents to improve recreational opportunities. Swimming pools/recreation centers, and off-leash dog parks can provide accessible leisure options for individuals, families, youth, and pet owners. The lack of such spaces limits opportunities for social interaction and physical activity, which is essential for community wellbeing. While Ferndale has several parks, they are unevenly spatially distributed, with suburban neighborhoods benefiting from small neighborhood parks. Many community gathering spaces, such as the Pioneer Pavilion and Ferndale Events Center require rental fees. This privatization of what are supposed to be public spaces makes them inaccessible to lower-income residents. These gaps demonstrate a need for public, inclusive community spaces that can serve as centers for social and cultural activities that can improve residents' quality of life.

Environmental and Public Health Concerns
Ferndale has significant environmental challenges that pose risks to public health and safety. The presence of toxic chemical releases between the Salish Sea and Ferndale, as well as diesel particulate matter from I-5, puts Ferndale residents in higher percentiles for air pollution exposure. In addition to these risks, the city is located in a floodplain, with la ge areas vulnerable to flooding and water quality issues. Parts of Ferndale are in the 87th percentile for drinking water non-compliance, raising concerns about the safety and reliability of the city's water supply. Access to healthcare is another key concern, as Ferndale lacks a 24/7 urgent care facility, forcing residents to travel to Bellingham for hospital services. The lack of healthcare facilities within Ferndale is also inaccessible, particularly for residents without reliable transportation.

Infrastructure and Accessibility
Ferndale has challenges in its infrastructure that limit accessibility and mobility for its residents. A major concern is inadequate sidewalks and biking infrastructure, particularly in dense, lower-income residential areas such as Portal Way. Residents have expressed a desire for improvements to walking and biking infrastructure and trails to improve safety and convenience for pedestrians and cyclists. The lack of quality infrastructure deters residents from active transportation, limits access to services and increases reliance on cars which worsens traffic congestion. Intersections near Main Street and Portal Way are frequently noted as having notoriously bad traffic fl . Residents also mentioned wanting an off-ramp connecting to Portal Way. This is not something the city will be able to accommodate, but it further highlights traffic frustration for commuters. With the city expected to double its population in the next 20 years nearly, the strain on existing infrastructure will only get worse.

NEEDS + CONCERNS
Food Security and Economic Development
Food insecurity is an ongoing issue in Ferndale, evidenced by some community members demonstrating interest in a food co-op and cheaper grocery options. While programs like the Ferndale Food Bank and Miracle Food Network may address immediate needs, they do not offer long-term solutions to systemic food access issues. The lack of a large affordable grocery store exacerbates food insecurity, especially for low-income families. Improving economic development is important to address these

disparities in access to local amenities. Residents are calling for more local businesses, particularly neighborhood shops, cafes, and restaurants. Encouraging local businesses to develop, particularly ones that prioritize local agriculture and food production, can help strengthen food security and address food deserts by having grocery stores available in underserved areas.

Housing Affordability and Equity

Housing affordability is a significant concern for Ferndale residents as rising costs and limited available stock create barriers to stable housing. There are severe inequalities apparent in homeownership rates, with white residents making up 85.7% of homeowners, while Hispanic or Latino households, despite making up an estimated 13.3% of the population, only make up 6.60% of homeowners. This highlights systemic inequities in housing access, often tied to income disparities and systemic discrimination. The median household income for Hispanic or Latino families is nearly $20,000 lower than White households, demonstrating a significant financial barrier to homeownershi

5.6 Environment

Based upon the findings from urban analysis research and the community kickoff event, we have created an analysis of Ferndale's best environmental assets, greatest concerns or current weaknesses and potential opportunities for future improvements. This analysis will begin with a summary of the central themes that will be assessed, then will evaluate Ferndale's strengths, needs and opportunities in each of these areas. This analysis will showcase the strengths, needs and opportunities contained within each theme, which will provide a basis for recommendations later in the report.

Themes
Key categories of information were divided into five themes:

1. Visual Appearance: encompasses all aspects of the look of Ferndale. When this theme was brought up in the kickoff event participants were mostly focused on trees; both the amount of them and their quality. Other aspects of the visual environment to consider are vegetation, landscaping, amount of green space in neighborhoods and views of natural scenery, such as the mountains, river or ocean.

2. Species Habitat: the habitat of both terrestrial animals, including deer, frogs and birds, and aquatic animals such as salmon and trout. This habitat is protected within the City of Ferndale through critical areas regulations, which were summarized in the previous section.

3. Flooding: The hazard that poses the highest risk to Ferndale. The flooding them encompasses the risk flooding poses to the community, city systems that influence the severity of floods like runo f and stormwater systems, and the mitigation actions being taken to reduce flood impacts.

4. Infrastructure / Services: looks at both the quality of infrastructure and services being provided and their potential vulnerabilities, in particular to floods. In both our analysis and th kickoff event, the ability of this infrastructure to respond to an increase in population was a main focus.

5. Recreation: this theme looks at all recreation opportunities in the city: parks, trails, green spaces, river access and more, and how these serve the wants and needs of the community Pollution: this theme encompasses both pollution coming from outside sources that impacts the city, mainly the nearby refineries, and the amoun of pollution produced within Ferndale.

STRENGTHS + ASSETS
In general, both the city government and the community seem to agree on what the environmental needs of Ferndale are, as reflected in city plans and feedback received during the community kickoff event. Recently enacted and planned city policies focused on mitigating flood risk, reducing emissions and improving and expanding parks infrastructure reflect an interest of the city in mitigation and improving environmental conditions in the city and the region, an interest that can be used to our advantage when recommending future steps. The event also showed that there was strong community interest in improving these conditions. Additionally, some of the participants were very knowledgeable about one or multiple environmental topics, meaning that at least some of the community is well equipped to think deeply about these complex issues.

Moving into physical assets, the natural environment and physical appearance of the areas surrounding Ferndale can rival nearly anywhere in the world in terms of variety and opportunity. Participants during the event expressed a great appreciation for current open spaces and the wildlife within them. While city parks and green spaces may currently not currently capitalize enough on this asset, they are in generally good condition and the parks that do exist provide a decent amount of variety in terms of activities. Similarly, while there are weaknesses in Ferndale's infrastructure, it is serviceable for the community and allows a focus on improvements rather than fixing immediate problems. Finally, while pollution is a clear negative, the refineries provide good income and employment.

NEEDS + CONCERNS
Participants in the community event were highly critical of the current visual appearance in the city, highlighting the lack of trees and other greenery. There was a large concern that this problem would only get worse with new development, as it would also reduce the amount of open space and species habitat. Participants were also concerned about

flooding, much more than any other hazard, over increased development downtown and a lack of connectivity during a flood

Concerns over infrastructure are also connected to the perceived threat of increased development and flood risk over infrastructure in the floodplain. Feedback on recreation was much more varied; people discussed wants for increased river access, a greater number of trails, improvements to current parks and a larger variety in park locations, all topics the city is hoping to improve on. Lastly, the refineries pose a health risk through pollution, as discussed in greater detail in the urban analysis.

OPPORTUNITIES

Ferndale has a variety of options available to increase tree canopy and improve the visual appearance of the city, decisions that would very likely find support among residents. As a start, the city could take inspiration from Bellingham, creating initiatives or tree protection ordinances. The potential economic and tourism draw of a place connected to the mountains and sea could also be utilized to create a stronger park and trail network for both visitors and residents. Flooding also presents an opportunity for improved natural areas; seeing as development should be minimized in the floodplain and floodw , this leaves space in this area for parks and critical areas for habitat. Finally, while the refineries clearly have both negative and positive impacts on the community, “greener” fuels being developed may show a potential opportunity to minimize environmental impact while still seeing economic benefits. The environmental toll of these jobs is also causing the city to develop new, less harmful economic opportunities.

6.0 Recommendations | 6.1 Land Use

For the City of Ferndale
Note: these recommendations are not successional but stand alone from each other (however implementing multiple is possible), and provide alternatives to each other for Ferndale's consideration.

Recommendation 1: Increase Commercial Use Types in Residential Zones

Through a spatial analysis of activities and functions in Ferndale through the Land Based Classification Standards (LBCS), it becomes apparent that due to a heavy reliance on residential zoning only in large portions of the city, there are not enough commercial activities in areas where people live to support complete communities or multi-modal access. This line of thinking is supported by feedback from Ferndale residents who attended our Community Engagement Event, who indicated verbally that they were unhappy with having to go downtown to access key commercial uses like grocery stores and gyms. This was supported by their responses on our Mapping the Common Sphere activity, which indicated the NorthWest section of Ferndale only contains educational, residential, and religious functions. If the city is not interested in fully rezoning portions of these service deserts, we recommend allowing more commercial uses to occur within residential zones. Allowing uses like small grocery stores, gyms, garden supply stores, etc would improve land use compatibility but more importantly the quality of life of Ferndale Residents.

Recommendation 2: Identify Opportunity Zones/Parcels for Community Infrastructure Development

An alternative to allowing commercial uses to occur in all residential zones could be spot zoning, which would involve identifying specific parcels for specific community needs such as a grocery story, secular community gathering spaces, or Program Centers for adolescents. All of these needs were expressly requested during our community engagement event. By focusing specifically on a couple of parcels, it may be more politically feasible with the general population and provide a similar service to the first recommendation. This process would involve first identifying a parcel of interest, for example 2444 Thornton St. or 5738 Third Ave., followed by upzoning that parcel as an opportunity zone, priming the parcel for development (increasing density, height maximums, reducing easements). It is recommended that if a specific use for the site has been deemed necessary, proper prescriptive zoning on its use should be pursued. This type of development could be private or a public-private joint-enterprise, but regardless should include the surrounding community and key stakeholders in its development.

Recommendation 3: Change the conditional uses in Residential Zones to allow for desired commercial uses.

Stated community input has suggested that residents want more commercial uses in Residential Zones that would allow for commercial activity such as a grocery store or other small commercial uses. Residents expressed a desire to be able to access more amenities in their neighborhoods without needing to travel across town. The benefit of this is that it allows for more complete neighborhoods and can help with resilience in the event of a natural disaster like flooding of the Nooksack which could cut off residents accessing services beyond Ferndale which was seen to be common in the map activity mentioned in the Community Input section above.

Recommendation 4: Establish a Form Based Code for Commercial Structures in Residential Zones

One option would be to consider utilizing Form Based Code. This would provide an answer to a lot of the concerns that were voiced during the public input session in November. Two highlights being that people felt their access to commercial, social, and recreation spaces was limited, and that people were concerned that Ferndale would lose its "small-town" feel, or become hyper-urbanized. Form-based code alleviates those concerns by creating code that is based around a regulating plan, public standards, and building standards. It means that generally most uses would be allowable in any zone, except largely Industrial uses that are designated to Special Districts (Form Based Codes Defined, FBCI 2016). The key to keeping the feel of the neighborhood is implementing design standards that preserve the character of a

high quality neighborhood, while allowing for these commercial and social uses that people are needing and asking for. Snoqualmie is one city that has implemented this, though other cities in Washington have done so predominantly in their downtown districts. But Snoqulamie deals with similar issues associated with being located on a river, and has a code that applies more generally to zones that are not downtown commercial (Snoqualmie Municipal Code, Ch. 17.32 2024)

Recommendation 5: Promote and Incentivize Infill Development

The infill potential for Ferndale should be considered as the City continues to address the proposed future housing needs for its residents. As shown in the projections for the city, there exists a large acreage of parcels with room for potential infill. Providing more density in Ferndale can help create more complete neighborhoods while also limiting expansion into UGA thus preserving land for future use. The City could create incentives for infill in residential zones to increase density by adding ADUs or other missing middle housing. By removing red tape and streamlining the process similar to that of Bellingham's Infill Toolkit, the city of Ferndale could greatly increase infill

6.2 Economic

Recommendation 1: Continue to enact policies that enable the creation and retention of new developments like the EAGLE Development Program and Ferndale Catalyst Program.

2016 Comprehensive Plan, Economic Development Element:
"III. BUSINESS FRIENDLY: "Ferndale's economy depends on the development, retention, expansion, and recruitment of private business. Establish Ferndale as the first choice for new businesses hoping to locate in Northwest Washington."

Recommendation 2: Develop and display a unique identity in the downtown shopping area to define Ferndale s appeal to new shoppers, without restricting business owners' ability to operate autonomously.

2016 Comprehensive plan, Economic Development Element:
"Downtown: Dense multi-family and mixed-use development will result in an in-place market within walking distance of convenience shopping, services, entertainment and dining within the core. This in turn will lure additional residents and visitors to the core area. Development regulations that are unique to Ferndale's downtown core, combined with zoning and fee structures that permit mixed land uses to flourish, are also necessary for a sustainable downtown."

Recommendation 3: Identify suitable locations outside of the downtown area and create mixed-use developments to increase ease of access to services.

2016 Comprehensive plan, Land Use Element:
"iii. Plan for the development of the Portal Way interchange and Thornton Extension as a transportation and commercial hub linking the Downtown, Portal Way and Hillside neighborhoods."

Recommendation 4: Allow for densification within the downtown core and disallow expansion into adjacent environmentally vulnerable or hazardous areas.

2016 Comprehensive plan, Land Use Element:
"F. The City should encourage mixed use developments in appropriate areas.
The City may consider establishing pilot programs/provide additional flexibility in certain areas to allow for additional specified uses in a particular area

Encourage development that serves as a transition between previously non-conforming uses and desired future uses/architectural concepts (kind of like incremental development but for land-use)"

Recommendation 5: Identify resilient alternatives to heavy fossil fuel industries and develop a plan to transition into a diverse economy.

2016 Comprehensive plan, Economic Development Element:
"A Diversified Economy will allow the community to prosper during challenging economic times and the ebbs and flows of the Cherry Point Industrial area. While the community will not be constrained from exploring new ventures, it will not attempt to re-envision itself as a "themed" community for the primary purpose of attracting tourists and visitors."

Recommendation 6: Begin research on identifying feasibility of increased healthcare facilities in the Ferndale city/ UGA.

The federal Health Resources and Services Administration (HRSA) classifies as Health Professional Shortage Areas (HPSAs) in the following areas:

Dental Health – score: 7
Mental Health – score: 10
Primary Care – score: 10

CONCLUSIONS

Ferndale lies at an important juncture in its development, wherein the approaching population growth offers both challenges and opportunities for growth. This is as a chance to create a comprehensive plan update that will diversify the economy, decrease reliance on industrial employment, and promote resilience and inclusiveness for a sustainable future. Our recommendations want to paint a vision of what an urban environment can be in terms of unique local development, better infrastructure, and a connected downtown. As these strategies are implemented, the City

of Ferndale can achieve its goal of fostering a thriving mixed-use community that will draw new residents, visitors, and businesses alike, all while increasing the quality of life for its citizens.

Going forward, it will be critical that planners, developers, and the public remain in communication, to ensure that plans are equitable for all parties. Any work going forward must be led by considerations of equity and sustainability. Insights from this report can form a foundation for further discussions, decisions, and future efforts toward building a city resilient to change which can afford equal opportunities to all residents. With the right policies in place and community engagement at its best, Ferndale can be transformed into an example for growth that balances economic growth with social and environmental good health.

6.3 Infrastructure

The following recommendations for infrastructure improvements intend to create safer streets for pedestrians, drivers, and other road users. It also intends to more clearly align policies with the GMA and take lessons from case studies and apply them to Ferndale.

Recommendation 1
Expand and enhance bicycle and pedestrian networks by adding a dedicated bike lane along Vista Drive and 3rd Avenue and producing a comprehensive bicycle and pedestrian map.

These new bike lanes will accommodate increased traffic and meet needs for people interested in bicycling in Ferndale while increasing safety for pedestrians as well. The bicycle and pedestrian map will serve both as a great resource for wayfinding in Ferndale and as a critical step to further developing multi-modal transportation and improvements in the future.

Recommendation 2
Increase safety along Vista Drive by constructing a dog-bone roundabout at Washington Street to streamline traffic flow and minimiz collision points and introducing traffic calming measures, including center islands and narrowed lanes, to reduce vehicle speeds and improve pedestrian safety. Vista Drive was identified as a dangerous road where speed limits are often exceeded, and pedestrians are made The following recommendations for infrastructure improvements intend to create safer streets for pedestrians, drivers, and other road users. It also intends to more clearly align policies with the GMA and take lessons from case studies and apply them to Ferndale.

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Recommendation 5
Design the Urban Growth Area (UGA) in a grid pattern, improving traffic, walkabilit , and access to services. This will avoid the issue of current residential developments in Ferndale where there are very few outputs to main roads, creating major traffic congestion

Recommendation 6
The city should impose a requirement on developers for new large developments to include sidewalk connections that link to nearby services and recreational areas, creating continuous and functional pedestrian pathways. This will not only serve as a great asset to residents in Ferndale as their options of transportation will be increased, but the overall comprehensiveness of Ferndale will benefit as the city is better connected within itself, making it a better city overall. Ferndale should investigate implementation of connectivity ordinance for new developments requiring connected street layouts similar to Portland Oregon's Connected Street's Ordinance. The amount of sidewalk improvement could be determined by the calculated traffic volume increase caused by the development.

Recommendation 7
Revitalize I-5 Exit 263 to improve safety for both vehicles and pedestrians, focusing on the roundabouts and better signage, lighting, and pedestrian crossings. This is necessary to increase safety in this area and to encourage pedestrian use. This revitalized pedestrian connection to Portal Way will also serve the economic developments in the area, which

will also benefit from major pedestrian-friendly improvements, such as wider sidewalks, benches, and landscaping to encourage foot traffic

Recommendation 8

Ferndale should investigate intensifying WTA bus route 27 Ferndale should intensify development around bus stops along Vista Drive, Thornton Street, and Church Road to encourage bus usage. With housing densification in these areas, there would be justification to increase service frequency. The WTA currently offers flex service along Route 75 to Blaine, and a similar service could be introduced here to provide bi-directional travel of the Ferndale loop on an hourly basis, while maintaining a shorter 30-minute frequency from downtown Ferndale to Cordata Station.

6.4 Social

Recommendation 1: Youth and families

It is apparent that in Ferndale there is just one consistent after-school childcare facility; The Boys and Girls Club, which in talking to community members at our kickoff meeting made it clear that more resources are necessary as there is currently a long waiting list to get into the Boys and Girls Club. Our recommendation is to create more accessible childcare facilities that would also double as community centers. To feasibly do this, we can look at what is already being done in other places, Specifically Bend Oregon, and Vancouver British Columbia. In Vancouver, there are programs set up that create community-integrated schools that serve as learning hubs for people from all walks of life. These schools include shared multi-use facilities for libraries, gyms, and community events. Funding these developments will be challenging but not impossible. Bend Oregon for example, uses incentives for businesses to provide childcare, offering tax breaks or subsidies for childcare providers.

Recommendation 2: Health and Wellbeing

As there are currently no 24/7 urgent care facilities in Ferndale, the pressure on surrounding healthcare centers will only worsen as projected population growth in Ferndale continues. Furthermore, environmental concerns such as flooding add to the o fense of making healthcare facilities inaccessible for residents of Ferndale. Our recommendations are to increase the allocation of funds, which could come from sustainable tax levies or public-private partnerships to build a centralized urgent care center in Ferndale. While also advocating for first aid and CPR training as an essential community service to help bridge response gaps. Another avenue to explore in providing more food access to residents would be to expand the current community garden program to be incorporated into local schools, and class curricula. The Good GRuB organization, based in Olympia WA, incorporates learning the basics throughout and does not take any knowledge for granted while providing fresh food and gardening supplies.

Recommendation 3: Cultural Resources

Given our analysis into how cultural connection and community meeting spaces foster community members well-being and facilitate stronger support systems, community gathering spaces, such as the Pioneer Pavilion and Ferndale Events Center are essential to expanding to further social networks. It is important to note that these community centers require expensive rental fees and reservations. Our recommendation is to create and advertise free days at these community centers for the public to utilize, as we continue to explore how to create more community center infrastructure in Ferndale. One funding opportunity for this new infrastructure could be utilizing city grants to support cultural art and events. Another recommendation we have is to add more historical resources, specifically about the Lummi Nation, on the City of Ferndale website and other media platforms, to increase access to more perspectives and information about the city of Ferndale.

Recommendation 4: Recreational Public Space

What stood out when seeing what parks Ferndale has, was the uneven spatial distribution through different areas of the city. Most suburban neighborhoods benefit from parks and small neighborhood parks while low-income areas of the city do not have nearby access to public outdoor spaces. These gaps demonstrate a need for public, inclusive recreational public spaces that can also serve as meeting places for social and cultural activities that can improve residents' quality of life. Our recommendation is to conduct spatial research to methodically find opportunity sites for future parks. While incorporating community feedback to see what these opportunity sites should consist of, like what was done when constructing Star Park. Furthermore, following Bend Oregon's success in how they created trail systems that link all major parks and community centers together could be transferable in helping Ferndale to increase connectivity. The construction of new paths and parks could be funded in part by a tiered tax system focusing on high-value commercial properties to fund public spaces. Another funding source could be adopted from what is being done in Bend that employs a dedicated property tax system and development cost charges (SDCs) to fund parks, recreation, and childcare services. By clearly allocating funds to these specific areas, they ensure sustainability and prevent

competition for resources among community priorities. Ferndale could explore similar funding mechanisms to maintain robust service provisions Basic Needs

The Community Service Center and the Senior Center are the primary resource centers for accessing basic needs in Ferndale. In our analysis, we found that these centers, like many other basic needs centers across America, are stretched in their capabilities to care for Ferndale community members. Our recommendation comes from decentralizing basic needs to be set up as stations across the city. In the same vein, the primary service center in Ferndale could look into what Room One, a non-profit in the Methow Valley is doing regarding basic need programs and in receiving grant funding. Additionally, Ferndale could implement inclusionary zoning policies to ensure a mix of affordable and market-rate housing, as is being done in Vancouver. Another option is to also introduce a tiered tax system focusing on high-value commercial properties to fund community services.

Recommendation 5: Safety and Accessibility

From talking to community members, there are real inconsistencies in sidewalks and multimodal corridors. This makes pedestrian and bikeway transit very dangerous, especially for children. One recommendation for this would be to further develop greenbelts or multimodal corridors like what is done in Vancouver with bike lanes and pedestrian-friendly paths.

Recommendation 6: Diversity and Equity

With Ferndale being the most diverse place in Whatcom County, it is crucial that the predicted growth is also reflected in equitably distributed resources. Our recommendation is to distribute new developments and resources across all neighborhoods, to help ensure no area is left underfunded. One strategy for Ferndale to explore could be implementing what Vancouver is doing with density bonuses, to maintain affordability.

6.5 Environment

As a result of this research, the following actions are recommended for adoption by the City of Ferndale:

Recommendation 1: Continue and Improve Upon Flood Mitigation Techniques.

The city should continue and expand their efforts to reduce flood risk, which impacts people, property, infrastructure and public health. As covered in the hazard mitigation plan, Ferndale plans to reinforce its dike, limit development in the floodwa , improve stormwater systems and their capacity and purchase properties that are consistently being flooded (Lake Whatcom Water and Sewage District, 2021). Greater protections for the water and wastewater plants in the floodplain are also being planned in the capital facilities section of the comprehensive plan (City of Ferndale, 2016). In addition to these strategies, the city should look at increasing the amount of open space and parks surrounding the river. Doing so would not only increase flood protection but provide greater community access to a resource that they feel is underutilized. While this technique may be expensive to implement, it would have strong support from the community and would tie in excellently with current strategies.

Recommendation 2: Promote development in urban areas outside of the floodplain.

Despite the many measures Ferndale is taking or has planned to mitigate flooding, the city states in the land use section of its comprehensive plan that it still intends to increase density in its downtown (City of Ferndale, 2016); while this would normally be a great idea, it may not be for an area with high flood risk. With climate change making this risk only greater in the future, more consideration should be taken before developing in this area. In addition to continuing with their planned mitigation efforts, Ferndale should develop a plan to promote its most dense development only in downtown areas with less flood risk or in the urban growth area. This technique will fit with the city s other mitigation efforts and will connect to its economic, social and infrastructure goals, while still seeing housing and land use priorities met.

Recommendation 3: Balance the Wants of the Public with Future Growth Needs.

Residents during the community kickoff event expressed a strong desire to preserve current green space and improve the visual appearance of the city, primarily mentioning trees and other vegetation. Some also expressed a concern that increased density and new development would destroy parts of the natural environment. While Ferndale cannot give up on development due to these concerns, if the city takes them into account during development there is a serious opportunity to both have beautiful new developments and neighborhoods that all of Ferndale can enjoy. The city currently has no urban forest plan, but the one created by the City of Bellingham could serve as guidance (City of Bellingham, 2024), and was mentioned by one of the participants as something she would like Ferndale to adopt at the kickoff event. Bellingham also has community tree programs that provide non-profits and neighborhoods grants and individuals coupons to make it easier to plant trees (City of Bellingham, 2024). Focuses like these could contribute to Ferndale's existing healthy communities' initiative, a main goal of its parks and trails plan (City of Ferndale, 2021). These plans being specifically implemented in new developments from the beginning, as well as regulations that preserve green space, could contribute to meeting land use, housing and environmental needs.

Recommendation 4: Improve Upon Current and Add Additional Parks and Trails.

An additional main desire we heard the public express at the kickoff event was for a greater number of parks and trails, in more areas with more variety. This was a central vision of the parks and trails element of the comprehensive plan (City of Ferndale, 2021) which planned for a variety of outdoor recreation opportunities spread throughout the community. This was also a goal of the active living environments section of the housing portion of the comp plan (City of Ferndale, 2022), which set goals for a city where everyone is within walking distance of a park or trail and has ample green space around their home. As the political will and community interest both seem to be present, it seems clear that these goals should be pursued. Improved parks could also provide benefits in other areas: for example, improved parks near the river, a wish of multiple people at the event, could prevent flooding as well as provide a

public benefit. Expanded parks would also likely have beneficial economic impacts and reduce social inequities in access.

Recommendation 5: Place greater consideration on the relationship between refineries and the communit .

Ferndale, like many other cities in the region, is focused on reducing emissions and the impacts of them on the community, empathizing techniques like expanding the use of solar panels, limiting waste and encouraging greater density and less car dependency (GHG Emissions Report, 2019). While all these steps are important, they leave out the largest contributor to emissions in the county, the two large refineries east of the cit . A simple solution does not exist; the independence the refineries have from city laws and the massive economic benefit they bring means they can't simply be forgotten about. Instead, the city can look to reevaluate and change its relationships to these refineries. Some of this is already being done; the economic development section of the comprehensive plan currently recommends an emphasis on creating new jobs not centered around extraction of natural resources (City of Ferndale, 2016). Additionally, the refineries increased focus on more "green" products should be encouraged.

CONCLUSIONS

These recommendations have been made in the hope they can be of use to both the City of Ferndale and the planning studio in the winter and spring quarters. Although many of these methods may take much longer than a few months to fully implement, hopefully they and the planning studio overall can create a framework that can be truly helpful to Ferndale planners and benefit the communit . Next quarter, these ideas around the environment that have been developed will be more deeply integrated with findings from other groups, allowing us to form more complete ideas and in turn recommendations. During this time we need to not get ideas from each other but from the entire community, particularly those who were underrepresented during our initial kickoff meeting. Doing so will allow us to fill current gaps in our knowledge and create plans that get closer to creating meaningful change.

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City of Ferndale, Washington

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Urban Analysis

Western Washington University
Department of Urban and Environmental Planning and Policy
College of the Environment
Fall 2024